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"Methods Used By the United States Government To Finance the Great War"

A thesis Submitted by

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to the Executive Committee of the Graduate School of the University of Pennsylvania as a partial fulfilment of the requirements for the degree

of

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CHAPTER I

INTRODUCTION

It seems to be quite inopportune for any one to write a paper on a war topic when the treaty of Locarno has just been signed and when the whole world is frowning upon the idea of warfare between nations. The writer is not entirely unaware of the current trend towards peace. It is certainly out of place here to discuss the disputed question whether armed conflicts will be avoidable or not. This paper is intended to be a historical analysis of the experience of the United States Government in financing the Great War with few conclusions which may be derived from the study.

In the previous parapraph we mentioned the word 'financing.' What do we mean by it? In a modern war, the chief problem which the government has to solve is how to equip an army of hundreds of thousands of doldiers with enough food, clothing and all other war materials. In order to secure food etc., the government has to obtain from time to time enough purchasing power in exchange for what it wants. To obtain such purchasing power from time to time is what we meant by 'financing'.

Although the actual period of the United States' participation in the War was about twenty months—from April, 1917 to the beginning of November, 1918, our study cannot strictly be confined to the short period. The writer finds it necessary to trace as far back as 1913 in one direction and as late as

1924 in another. In the Chapter on inflation, we find it necessary to compare the conditions in the 'war period' with those previous to that time. In our study of the costs of the war and how it was met, we ~~have to~~ could study the financial statements of the Government even up to the present moment. With these considerations in mind, we shall approach directly upon the subject. Our method of approach upon the subject will consist of three steps: (1) We shall find out the total costs of the war to the United States; (2) how those costs were met; (3) what conclusions may be derived from the study.

Costs of the War. There are several kinds of costs: the so-called real costs, true costs and money costs. Real costs are to be "measured by the diminition of social patrimony and by the diversion of current social output from productive to unproductive channels, i.e., by changes both in the fund of accumulated wealth and in the flow of social income".[1] True costs of a war are to be measured by net sacrifices which is due to the war. By 'money costs' is meant the costs in the form of governmental expenditures. They are to be measured by the surplus above the general expenditures in time of peace. It is the costs in the form of governmental expenditures which are chiefly concerned in this paper.

Estimates vary greatly as to the total costs of the War. The total expenditures of the Government during the war period do not constitute the total costs inasmuch as part of the expenditures were for the purpose of maintaining the administration of the government which would have occurred even without the War.

(1) E. R. A. Seligman, Annals of American Political and Social Science, January, 1918, p. 56.

On the other hand, the costs of the war do not end with it. Part of the money costs will be paid in years to come. It is, therefore, difficult to ascertain the precise costs. For our purpose, we shall try to find the costs occurred during the war period and those occurred after the war separately.

The first question which confronts us is: what would be the total expenditure of the Government for the fiscal years, 1917, 1918 and 1919, if the war did not take place? Our method of estimating expenditures on peace basis is to find out the trend of the increases of governmental expenditures during the decade just prior to the War. The following table shows us the total annual ordinary disbursements exclusive of postal deficiencies from fiscal years 1906 to 1916:

Increases of Ordinary Disbursements, 1906-1916.

(In 000,000 of dollars)[2]

Year	Total Amount	Percentage increases using previous year figures as base.
1906	536.7	(100)
1907	544.0	101.4
1908	608.2	111.8
1909	642.8	105.7
1910	651.2	101.3
1911	654.1	100.4
1912	652.9	99.8
1913	681.7	104.4
1914	700.2	102.7
1915	724.7	103.5
1916	718.9	99.2
Average		103.2

This shows that during the years just prior th the War or prior to the declaration of war, the average percentage increase of total ordinary expenditures was 3.02 per cent. In other words, according to the trend, the total ordinary expenditures in the fiscal year 1917 should have been 3.02 per cent more than

(2) Treasury Report, 1919, p.635.

that of 1917 and so on. Figuring on this basis the following table shows the estimated total ordinary expenditures for the fiscal years 1917, 1918 and 1919 on peace basis with due consideration for rise of price level.

Year	Estimated total ordinary disbursements on peace basis with an increase of 3.08 per cent for the rise of price level.
1917	765.6
1918	815.3
1919	868.3
Total	2,449.2

This table needs some explanation. In calculating the estimates, we allow an increase of 3.02 per cent for the trend and an additional 3.08 per cent for rise of price level. According to the index number of wholesale price level given in U. S. Monthly Labor Bulletin,[3] the index number of price level in 1906 was 89 per cent and that in 1916 was 127. This shows an increase of 38 per cent in a period of eleven years or an average increase of 3.08 a year. If we assume that the same trend of increase in both absolute amount as well as in price level would have continued, if the War had not taken place, then the amount of ordinary expenditures in 1917 would be 6.50 per cent more than that of 1916. The reason why we used a hypothetical increase in price level instead of the actual index number for the corresponding years is this: the actual index number of price level since 1916 was partly if not entirely influenced by the War. Thus, to use the actual index of price level would be contradictory to our purpose of estimating what would have been the total amount of ordinary expenditures if the War had not taken place.

According to the table, the total ordinary disbursements

(3) U. S. Monthly Labor Bulletin, Wholesale Price Series, 1923 p9

for the fiscal years 1917, 1918 and 1919 on peace basis would have been 2,449.2 millions of dollars. The actual amount was 34,775.2 millions of dollars (1917, $2,066,700,000; 1918, $13,768,900,000; and 1919, $18,939,500,000). The difference of 32,326 millions of dollars should represent the amount of war costs for this period.

However, this amount by no means represents the total costs of the War to the United States Government. Even as far as 1924 the total amount of ordinary expenditures was far greater than what it would have been if the war did not take place. The following table shows us the total costs from 1920 to 1924.

Year	Estimated total ordinary expenditures on peace basis	Actual amount[4]	War costs.
1920	924.7	6,141.7	5,217.0
1921	984.8	5,115.9	4,131.1
1922	1,048.8	3,372.6	2,323.8
1923	1,116.9	3,294.6	2,177.7
1924	1,189.5	3,048.6	&1,858.1
Total	5,264.7		15,707.7
Total for the war period			32,326.0
Grand total			48,033.7

The table shows that until the end of the year 1924, the war had cost the United States Government 48,033.7 millions of dollars. The grand total will not be known until ten years later or so. If we assume that the average war costs for the next ten years be 1,700 millions of dollars a year and that by the end of the ten-year period the total ordinary expenditures coincide with the estimated total for that year, then the total costs of the War to the United States Government would be about 65 billions of dollars.

Whatever be the total costs of the War to the United States

(4) Figures obtained from Treasury Reports of the respective year

Government, our chief concern in this chapter is the total costs for the war period and that for the period between 1920 and 1924. Our estimate for the war period is 32,326 millions. It is interesting to compare this figure with the estimates of other sources. Professor E. L. Bogart estimated for the period at $32,080.2 millions[5] In a letter dated July 9, 1919 to Congressman Fordney, Chairman of the House Committee on Ways and Means, Carter Glass, then Secretary of the Treasury, estimated at $32,427 millions[6]. The closeness of the three estimates indicate that our calculation may be relied upon.

From the above analysis it may be learned that our problem is a fiscal one. In this paper we are not interested in how the war was conducted nor how the materials and equipments were made nor how many lives and how much tangible property were lost to the nation as a result of the War. Instead we are merely interested in how the war was financed from the fiscal point of view. In the previous paragraphs, we have already found out the costs of the War to the United States Government for the war period as well as for the subsequent periods between 1919-1924. Our next task is to find out how the costs were met. This inquiry is our chief aim in this paper.

Generally speaking there were three principal methods in riasing revenues for the Government to conduct the War, viz., war borrowing, taxation and inflation. The Government did raise some money by selling public lands or by selling war materials or some other sources but the total sum derived from these

(5) E. L. Bogart, War Costs and Their Financing, p. 88
(6) E. L. Bogart, War Costs and Their Financing, p. 88.

sources was so insignificant in comparison with the huge sums raised from the other three principal methods that it might have been omitted without any consequence on the financing of the War. Furthermore, receipts from those sources were not depended upon by the Government as regular revenues. The addition of these revenues were considered as casual in character and having no bearing upon the fiscal policies of the Government. For this reason, we are not going to deal with those minor sources of revenues in this paper. To each one of the three principal methods we shall devote one chapter. We shall see in the next chapter to what extent war borrowing was used as a means of financing the War.

CHAPTER II

WAR BORROWING

Before we attempt to find out to what extent borrowing was used as a means of war finance, we shall, first of all, study the conditions of the Treasury on June 30, 1916. A careful study of ~~them~~ those conditions will give us a clear background in contrast to which we shall be able to have a better understanding and appreciation of what we shall find in the rest of the chapter. On June 30, 1916, there was in the Treasury a balance of $218,863,995.43[1] free of all current obligations. This means that the Treasury could use the sum in any way it deemed proper. The total ordinary receipts of the year were $779,664,552.49, while the total ordinary disbursements were $718,992,998.90.[2] This means that there was an excess of about 60 millions of dollars of ordinary receipts over disbursements and that the Treasury was in sound condition. The outstanding public debt of the United States at the time was given as follows:[3]

Outstanding Public Debt of the United States on June 30, 1916.

Interest-bearing Debt:		
Loan of 1925, 4 per cent	$118,489,900	
Loan of 1908-1918, 3%	63,945,460	
Consols of 1930, 2%	626,259,550	
Panama Canal Loan 2%	84,331,980	
Panama Canal Loan 3%	50,000,000	
Postal Savings Bonds, 3%	8,245,100	
Conversion Bonds, 3%	5,900,600	
One-year Treasury notes 3%	4,390,000	
		971,562,590

(1) Treasury Report, 1916, p.38
(2) Treasury Report, 1916, p.33
(3) Treasury Report, 1916, p.36

(Total public Debts of U. S. Continued)

Debts on which interest has ceased:		
Funded Loan of 1891	26,950	
Loan of 1904	13,050	
Funded Loan of 1907	519,650	
Refunding certificates	12,060	
old debt	901,390.26	
Total		1,473,100.26
Debts bearing no interest:		
U. S. Notes (Greenbacks)	346,681,016	
National Banks Notes (Redemption Account)	51,506,237.50	
Old demand notes	53,152.50	
Fractional Currency	6,848,496.90	
		405,088,902.90
Grand Total		1,378,124,593.16

Of the total amount of 1,378 millions of dollars of public debt, 405 millions were notes and currencies. Of the other 973 millions, about 680 millions were kept by national banks to secure circulation. ~~Only~~ There were about 287 millions of dollars of loans outstanding which might be retired without any consequence on the money market. This sum is a very trifling amount and is almost negligible. Such were the conditions of the United States Treasury few months prior to the War.

Our next inquiry is: how were the 32,485.5 millions of dollars successfully raised during a short period of about two years and to what extent borrowing was responsible for the success? It may be pointed out here that there are two kinds of borrowing: one is internal borrowing and the other is external borrowing. By internal borrowing is meant borrowing from the people of the country. By external borrowing is meant that from abroad. During the War the United States did not borrow at all from abroad. Instead ~~she~~ we ~~landed~~ loaned about

9,102[4] millions of dollars to the Allies. Internal borrowing may in turn be divided into two kinds, short-term borrowing and long-term borrowing. Short-term borrowing was represented by the treasury certificates of indebtedness and the long-term borrowing was represented by the four issues of Liberty loan bonds, Victory notes and others. Short-term borrowing was used merely as a temporary means of war financing; whereas long-term borrowing was used as an intermediate step between short-term borrowing on one hand and taxation on the other. In the next few paragraphs we shall attempt to find out to what extent internal borrowing was used during the war period as well as that between 1920 and 1924.

During the War Period. At the beginning of this chapter we have studied the conditions of the Treasury at the end of the fiscal year 1916. Between June 1916 and April 1917, conditions did not change materially. On March 31, 1917, just prior to the declaration of war, the Treasury issued 50,000,000 dollars of certificates of indebtedness. This was the only borrowing made between the end of the fiscal year 1916 and April 1917. At the time when war was declared, the Treasury was confronted with a very serious and difficult problem which was to raise hundreds of millions of dollars within a short period of few weeks in order to meet the need of the Government. This problem was solved by the issuance of Treasury certificates of indebtedness in anticipation of receipts from Liberty Loans and from taxation. The same method of securing the necessary loans for the Government was later adopted as a definite policy of the

(4) E. L. Bogart, War Costs and Their Financing, pp.88-89.

Government to finance the War. It may be interesting to describe how the method was put into actual practice.

~~Since~~ From the declaration of war until the armistice, the Treasury issued ~~in~~ almost every two weeks certificates of indebtedness. The total amount of each issue varied between 200,000,000 and 600,000,000 of dollars. Just prior to the Time certificates were issued, the Treasury notified the twelve Federal Reserve Banks of their respective quotas. The 12 Federal Reserve banks acted as fiscal agents of the Treasury and through them the certificates and bonds were placed. The quotas were determined according to the total resources of member banks in their respective districts. As soon as the 12 Federal reserve banks were notified of their quotas, they would set aside enough ~~amount of~~ resources to take up the certificates. Then, the Federal Reserve banks would begin the campaign of selling them to customers. The proceeds ofthe campaign would be credited to the Government deposit account. It may be noted here that the Federal reserve banks could not have done that without the aid of the member banks of the System. The member banks took their respective quotas from the Federal reserve banks and proceeded with the sale. Most of the member banks of the System were depositaries of the Government. Any bank or trust companies, having payments to make for 100,000 or more bonds, would be qualified as a depositary.[5] The Treasury did not prevent a group of banks or trust companies ~~combined~~ associating together and designated one of them as the place where

(5) Treasury Report, 1917, p.124.

deposits would be kept. Thus, almost any bank or trust company was qualified as a depositary of the Treasury. In 1917 1,251 national banks and 780 state banks were depositaries of the Treasury.[6]

As most of the proceeds from the sale of the certificates of indebtedness were kept in deposit of the same banks, the selling and purchasing of certificates usually involved only a transfer of credits —a transfer from the deposit account of individual customers of the banks to the deposit account of the Treasury. The advantages of this method of issuing certificates of indebtedness are many: In the first place, it "offers of supplying the Treasury with the funds to be raised by credit at the precise time and to the exact amount desired."[7] The effectiveness of a war measure depends upon its expediency in supplying the Treasury with funds sufficient to meet the extraordinary requirements of national defense. Thus, the method of certificate borrowing has the advantage of expediency. In the second place, it has the advantage of causing less disturbance to the business activity of the nation and least injustice to social classes. We shall fully appreciate this advantage if we visualize what would have been the case without this method. There would have been a great financial stringency and distress at the time when Liberty Loan bonds were issued. Let us take the first Liberty Loan as an example (the amount involved in the first Liberty Bonds being the smallest of the four issues), and assume that certficate borrowing was not to be

(6) Treasury Report, 1917, p.25.
(7) J. J. Hollander, War Borrowing: A Study of Treasury Certificates of Indebtedness of the United States, p. 97.

used. Then there would have been a financial transaction which involved more than two billions of dollars within a short space of two months or so.[8] The total amount of money in circulation in the United States was only about five billions. The issuance of the first Liberty Loan in that case would have created a demand of two billions for money, for the buyers of bonds had to secure money or the banks had to secure it for the payment of bonds. If there was such a large demand for money and currency, then banks would have had to issue more notes which would have led to further inflation (see Chapter IV of this paper). Furthermore, there would have been a great stringency of money and the money rate would have gone up. Such financial stringency would have caused a crisis which might have in turn precipitated into a great panic. It is evident that panics in times of war would lead to national disaster. Our analysis concerning the advantages of certificate borrowing is highly hypothetical. It is not the intent of the writer to discuss the merits and defects of methods of war finance in great length in this paper. For further information, the writer wishes to refer the reader to the Chapter on the Effect on Money Market in War Finance which was a study of Treasury certifiates of indebtedness of the United States written by Professor J. H. Hollander of Johns' Hopkins University.

Let us now examine the total amount of certificate borrowing done by the Treasury during fiscal year, 1917-1919. According to the following table, certificates issued in antici-

(8) The First Liberty Loan was issued on June 15, 1917 and the fifth installment was to be paid on Aug. 30, 1917. Treasury Report, 1917, p.5.

Certificate of Indebtedness Issued by the Treasury, 1917-1919.[9]

Date	Maturity	Interest %	Amount of Issue	Total
Anticipating First Loan:				
1917: April 25	June, 30	3	$268,205,000	
May 10	July 17	3	200,000,000	
May 25	July 30	3¼	200,000,000	
June 8	July 30	3¼	200,000,000	
				868,205,000
Anticipating Second Loan:				
1917: Aug. 9	Nov. 15	3½	300,000,000	
Aug. 28	Nov. 30	3½	250,000,000	
Sept 17	Dec. 15	3½	300,000,000	
Sept 26	Dec. 15	4	400,000,000	
Oct 18	Nov. 26	4	385,197,000	
Oct 24	Dec. 15	4	685,296,000	
				2,320,493,000
Anticipating Third Loan:				
1918: Jan. 22	Apr. 22	4	400,000,000	
Feb. 8	May 9	4	500,000,000	
Feb. 27	May 28	4½	500,000,000	
Mar. 20	June 18	4½	543,032,500	
Apr. 10	July 9	4½	551,226,500	
Apr. 22	July 15	4½	517,826,500	
				3,012,085,500
Anticipating Fourth Loan:				
1918: June 25	Octo 24	4½	839,646,500	
July 9	Nov. 7	4½	753,938,000	
July 23	Nov. 21	4½	584,750,500	
Aug. 6	Dec. 5	4½	575,706,500	
Sept 3	Jan. 2, 1919	4½	639,493,000	
Sept 17	Jan. 16	4½	625,216,500	
Oct. 1	Jan. 30	4½	641,069,000	
				4,689,820,000
Anticipating Fifth Loan:				
1918: Dec. 5	-------	4½	613,438,000	
Dec. 9	-------	4½	572,494,000	
1919: Jan. 2	-------	4½	751,684,500	
Jan. 16	-------	4½	600,101,500	
Jan. 30	-------	4½	687,381,500	
Feb. 13	-------	4½	620,578,500	
Feb. 27	-------	4½	532,381,500	
Mar. 13	-------	4½	542,197,000	

(9) E. L. Bogart, War Costs and Their Financing, p. 204.

Table continued.

Apr. 10	-------	4½	646,025,000	
May 1	-------	4½	591,308,000	
				6,157,589,500
In anticipation of income and profits taxes, 1918				1,624,403,500
In anticipation of income and profits taxes, 1919				3,354,787,500
To secure Federal Reserve bank notes				255,475,000
Special Issues				7,733,635,903
Total				29,986,494,903

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pation of the First Liberty Loan were matured between June 30 and July 30, 1917. The First Liberty Loan was issued on June 15 and the last installment was to be paid on August 30, 1917. Paymats of the first Liberty Loan were permitted in five installments as follows:[10] Two per cent on subscription; 18 per cent on June 25, 1917; 20 per cent on July 30, 1917; 30 per cent on August 15, 1917; 30 per cent on August 30, 1917. According to the orginal allotments, the aggregate sum was to be two billions of dollars. Thus, on June 25, 1917 the Treasury would receive 20 per cent of two billions or the sum of 400,000,000 dollars which was sufficient to cover the certificate borrowing of April 25 which was to be matured on June 30. By July 30 the Treasury would receive 40 per cent of the total Liberty Loan or the sum of 800,000,000 dollars which was about enough to reseem all the certificates issued in anticipation of the first Liberty Loan. Realizing that the Treasury would receive 60 per cent of the total amount of the First Liberty Loan, there was no certificate borrowing between June 8 and Aug. 9. The total amount of certificates issued in anticipation of the first

(10) Treasury Report, 1917, p.5

loan was $868,205,000w which was less than one half of the total amount of Liberty loans floated.

On August 9, 1917, certificate borrowing in anticipation of the Second loan began. Payments for the Second Loan were permitted in four installments as follows:[11] Two per cent on subscription; 18 per cent on November 15, 1917; 40 per cent on December 15; and 40 per cent on January 15, 1918. The amount of the Second Loan authorized was 3 billions of dollars, and was offered to the public on October 1, 1917. According to the installment plan, the Treasury would have 20 per cent of the three billions of dollars or a sum of 600 millions of dollars by November 15 when the amount of 300 millions of certificates issued on August 9, 1917 would be matured. By December 15, all certificates issued in anticipation of the Second Loan were matured, but the Treasury, by this time, would have received 60 per cent of the total Second Loan subscribed. The receipt of 60 per cent of the second Loan would almost be enough to redeem the total amount of certificates issued in anticipation of the Second Loan. On January 22, 1918, the Treasury began to issue certificates of indebtedness in anticipation of the Third Loan. Between January 22, 1918 and April 22, 1918, there were six issues of certificates for an aggregate of 3,012,085,500 dollars. The interval between issues was about twenty days. Between June 25, 1918 and October 1, 1918 there were seven issues of certificates of indebtedness in anticipation of the Fourth Loan for an aggregate of 4,659,820,000 dollars. In anticipation of the Fifth

(11) Treasury Report, 1917, p. 13.

Loan, there were ten issues of certificates of indebtedness from December 5, 1918 to May 1, 1919 for an aggregate of 6,157,589,500 dollars.

In addition of those issued in anticipation of the Loans, certificates were issued as follows:

Certificates Issued Other Than In Anticipation of Loans.[12]

Date of Issue	Date of Maturity	Interest Rate	Total Amount
In anticipation of income and profits taxes, 1918.			
1917: Nove 30	June 25, 1918	4	$691,872,000
1918: Jan. 2	do	4	491,822,500
Feb. 15	do	4	74,100,000
Mar. 15	do	4	110,962,000
Apr. 15	do	4	71,880,000
May 15	do	4	183,767,000
			1,624,403,500
In anticipation of income andprofits taxes, 1919			
1918: Aug. 20	July 15, 1919	4	157,552,500
Nov. 7	March 15, 1919	4½	794,172,500
1919: Jan. 16	June 17, 1919	4½	392,381,000
Mar. 15	June 16, 1919	4½	407,918,500
June 3	Sept 15, 1919	4½	526,139,500
June 3	December 15	4½	238,711,500
July 1	Sept 15, 1919	4½	326,468,000
July 1	Dec. 15, 1919	4½	511,444,000
			3,354,787,500
Grand Total			4,979,191,000

Besides the amount of $4,979,191,000 in anticipation of income and profits taxes, certificates to the amount of 7,733,635 903 dollars were issued from time to time. There was also an issue of $255,475,000 to secure Federal reserve bank notes under the Pittman Act.

It is interesting to note that the Treasury raised 29,986

(12) Treasury Report, 1919, pp 259-260

millions of dollars during the fiscal years 1917, 1918 and 1919. The total expenditures of the three years were 34,755 millions of dollars. Of the total expenditures, only 4,769 millions were not met by revenues raised from certificates of indebtedness. Or, in percentage figures, the Treasury depended a little bit more than 86 per cent of meeting its total ordinary expenditures upon certificate borrowing. It is true that the Government raised large sums both from Liberty loans and Taxation, ~~but most part of the revenues from both Liberty loans and taxation~~, but the largest part of the revenues from both of them were used to redeem certificates ofindebtedness as we have just learned from our analysis of certificate borrowing. The significance of certificate borrowing as a means of war finance can not be very well overemphasized. Without it, it would have been difficult to succeed in floating the four big loans and in meeting the urgent need of the Government.

Thus far, we ~~have~~ learned that during the war period, the Treasury depended almost exclusively upon certificate borrowing as the temporary means of war finance and that the redemption of certificates was made possible by the receipts from loans and taxes, in anticipation of which most of the certificates were issued. Our next inquiry is to what extent long-term borrowing was used as a means of war finance during this period.

Long-term Borrowing. Although certificates borrowing was extensively used, long-term borrowing also played an important role in financing the War. Certificate borrowing ~~was~~ is of transient nature. It must rely upon a more permanent source

of revenue without which its usefulness ~~would be~~ is very limited. The Treasury issued four loans during the course of the War, and by the end of the fiscal year 1919 the fifth loan was well under way. We shall describe each of the four loans separately.

The First Liberty Loan. The First Libery loan was issued between May 14 and June 15, 1917, and was authorized by the First Liberty Loan Act of April 24, 1917. The bonds were 15-30-year bonds to be matured on June 15, 1947 but redeemable after 1932 ~~with a~~ upon three months' notice. The amount offered was $2,000,000,000, but the total amount of subscriptions aggregated to the amount of $3,035,236,850 or an over-subscription of 52 per cent. The over subscription was not accepted according to the previous announcement. They were exempt from all taxes but estate and inheritance taxes, and were convertible into similar bonds issued at higher rates of interest, if such bonds should be issued later.

The method used in issuing the First Liberty Loan was similar to that of issuing certificates of indebtedness except the fact that the former was more elaborate in scale and more painstakingly conducted. Like the method used in issuing certificates, the twelve Federal reserve banks were used as the fiscal agents of the Government ~~and through which the bonds were issued~~. Each of the Federal reserve banks appointed a committee whose personnel consisted of representative business men of its district. The central committees in turn appointed subcommittees in various towns and cities within their respective districts. Through those committees and subcommittees, publici-

ty campaigns for the sale of Liberty bonds were conducted. Those committees were chiefly responsible for the successful floating of loans which were always oversubscribed.

The Second Liberty Loan. The Second Liberty bonds were four per cent 10-25 year convertible gold bonds, issued on November 15, 1917 and were authorized under the Act of September 24, 1917. The amount offered was for $3,000,000,000 and the total amount of subscription was $4,617,532,300 or an oversubscription of 54 per cent. In accordance with the announcement, the Treasury only accepted 50 per cent of the total amount of oversubscription. The tax-exempt feature of the Second loan, ~~was~~ made them free from all taxes but estate and inheritance taxes. The Second loan was made subject to the estate and inheritance taxes as well as the graduated super-income taxes and excess-profits and war-profits taxes except that incomes from $5,000 principal were exempted. The modification of the tax-exempt feature was prompted by the growing criticism on the tax-exempt feature of the First loan. The introduction of surtaxes on incomes in the War Revenue Act of October, 1917 placed a premium on the bonds of the First loan and embittered the well-to-do class. However, the modification was partly offset by the increase of one-half a per cent of interest rate.

The Third Liberty Loan. The Third Liberty bonds were 4½ per cent 10-year inconvertible gold bonds, issued on April 6, 1918 and were authorized by the Act of April 4, 1918. The total amount offered was $3,000,000,000 and the total amount subscribed was $4,176,516,850, or an oversubscription of about

39 per cent. The Treasury accepted all the oversubscription as it announced beforehand. The tax-exempt feature remained the same as that of the Second Loan.

The Fourth Liberty Loan. The Fourth Liberty bonds were 4¼ per cent 15-20 year inconvertible bonds, issued October 24, 1918 and was approved by the Act of July 9, 1918. The total amount offered was $6,000,000,000 and right was reserved to accept any amount of oversubscription. Total subscription aggregated $6,989,047,000 or an oversubscription of about 11 per cent. The rate of interest was stabilized at 4¼ per cent. But, in order to offer inducement to investors, additional tax-exemption privilege was granted. The new tax-exempt feature of the Fourth loan was summarized in the Treasury Report of 1918 as follows:[13]

"It was provided that the interest on $30,000 of bonds of the Fourth Liberty loan should be exempt, until two years after the termination of the war, from surtaxes and excess profits taxes and war-profits taxes. The taxpayer who suscribed for $30,000 of these bonds and still held them at the time of making his tax return would also receive an exemption from such taxes for a like period as to the interest received after January 1, 1918, on an aggregate amount of $45,000 of bonds of previous Liberty loans..... and subscribers in lesser amounts would receive a proportionate similar exemption".

The new exemptions were in addition to those granted to the Third loan. The new exemptions together with the Bending Revenue Act of 1918 which doubled the surtaxes, increased the value of the bonds and enabled the Treasury to keep the interest rate at 4¼.

Shortly after the floating ofthe Fourth Liberty loan, the armistice was signed. The Fourth Loan enabled the Treasury to

(13) Treasury Report, 1918, p. 13-21.

retire the total amount of certificates issued in anticipation of the loan, and, in addition, left the Treasury a balance about two billions of dollars, which was suffficient to enable the Government to conduct the War until armistice. However, this ~~is~~ War by no means the end of the task of financing the war. In fact, the cancellation of war contracts and the maintenance of soldiers in France drew heavily upon the Treasury. The governmental expenditures reached their highest peak in December, 1918. We shall study the financing of the post-war period in the second part of this chapter.

Our discussion on Liberty loans may be summarized as follows:

Name	Amount offered	Amount subscribed.	Total amount accepted.
1st Loan	$2,000,000,000	3,035,236,850	2,000,000,000
2nd loan	3,000,000,000	4,617,532,300	4,500,000,000
3rd loan	3,000,000,000	4,176,516,850	4,176,516,850
4th loan	6,000,000,000	6,989,047,000	6,989,047,000
Total	14,000,000,000	18,818,333,000	17,665,563,850

The table shows us that the amount of liberty loans offered for sale was 14 billions of dollars, that the amount of subscriptions was 18 billions and 818 millions of dollars and that the amount accepted by the Government was 17,665 millions of dollars. It seems to indicate that the people of the United States could have supplied 1,200 millions of dollars more than what the Government needed. Judging by the constant decline of the percentage of oversubscription, however, it seems that the several issues of loans had a cumulative effect upon the ability of the people to lend the their government. The percentage of oversubscriptions of the first, second, third and fourth loans were 52, ~~54~~ 54, 39 and 11 per cent respectively.[14] The

(14) Figures obtained from Treasury Reports of 1917, 1918 and 1919.

Government depended to the extent of 17,665 millions of dollars upon long-term borrowing, This sum is about 52 per cent of the costs of the War during the fiscal years 1917, 1918 and 1919, and is about 51 per cent of the total expenditures of the three fiscal years. The ratio of long-term borrowing to the costs of the War during the war period would be greater if we include part of the Victory loan receipts in this period. The percentage increase in that case could not be more than one per cent.

War-savings Certificates. Although Liberty loans furnished the Treasury with large sums of revenue, the war-savings certificates also yielded a considerable sum. Those certificates were intended for the convenience of the smaller investors who could not invest $50 or upward at one time. The issuance of these securities was authorized by the Act approved September 24, 1917. Those securities were in the form of war-savings stamps costing from $4.12 to $4.23, according to the month in which the stamps were purchased and they had maturity value of five dollars. For the purpose of these savings stamps, thrift stamps of 25 cents each might be accumulated. Thus, any one person might invest as low as 25 cents at one time. The total receipts from this source from December 1917 to October, 1919 were $1,115,076,438.89.[15] The total redemptions for the same period totaled $204,391,451.45. Thus, the Treasury had a net receipt of about 910 millions of dollars.

Summary of the Period. To sum up for the period, the Treasury depended about 86 per cent upon certificate borrowing

(15) Treasury Report, 1919, p.62.

as a temporary means of financing the War. Those certificates were of short duration and were retired between two and three months after their issuance. As a permanent means of financing, the Treasury depended about 51 per cent upon Liberty loans and about .25 per cent upon War-savings certificates to meet the total expenditures of the period. To meet the costs of the War during the period, the Treasury raised about 52 per cent from long-term borrowing which included both Liberty loans and war-savings certificates. Before we approach the next period, let us give a survey to the public debt of the United States Government on June 30, 1919.

Statement of the Public Debt ofthe United States.
June 30, 1919.[16]

Bond issued prior to the war		883,359,990.00
First Liberty loan	1,984,796,730.00	
Second Liberty loan	3,566,464,969.00	
Third Liberty loan	3,958,560,357.50	
Fourth Liberty loan	6,794,504,557.00	
		16,304,326,613.50
Victory Liberty loan		3,467,840,956.77
Treasury certificates:		
Loan and tax	3,273,000,000.00	
Pittman Act	178,723,000.00	
Special issues	182,494,490.00	
		3,634,217,490.00
War savings certificates (net cash receipts)		956,032,121.45
Old debt on which interest has ceased		2,355,250.26
Noninterest-baaring debt		236,382,735.07
Total Gross Debt		25,484,506,160.05

Comparing this statement with that of the conditions of the Treasury prior to the War, we find that there was a net increase in public debts of $24,105,381,566.89. Comparing the increase in public debts with the total ordinary expenditures of the period, we find the ratio between the two is 69 to 100. Thus

(16) Treasury Report, 1919, p.30.

far we have tried to find out to what extent borrowing was used as a means of financing the War during the war period. Our next attempt is to find out to what extent borrowing was used in the period between 1920 and 1924.

The Period Between 1920 and 1924. At the end of the fiscal 1919, the growing need ofthe Government resulted in the issuance of the fifth loan which was known as the Victory loan. The Victory bonds were 3¾ per cent tax-free bonds or 4¾ per cent notes, subject to estate and inheritance taxes and the graduated super-income, excess profits and war-profits taxes with block exemptions and also exemption"from the last three taxes of the interest on $20,000 principal of bonds, but not to exceed three times the amount of notes owned at the next tax return." [17] The 3¾ per cent and the 4¾ per cent notes were interchangeable. The bonds were issued on May 20, 1919 and were authorized under the Act of March 3, 1919. The total amount offered was $4,500,000,000 with promise of not accepting any oversubscription. The total amount subscribed was $5,249,908,300 or an oversubscription of 16.66 per cent.

Since August 1919 when the highest peak of total amount of public debt was reached, there has been a gradual decline of the total amount of public debt outstanding at the end of each fiscal year. With the exemption of Victory notes and Treasury notes which the Treasury issued to the extent of $319,191,600 in 1921, $3,690,313,650 in 1922, $3,796,804,361 in 1923 and $808,828,810 in 1924, every item of public debt showed an excess of redemption over receipt. Detailed transactions of pub-

(17) E. L. Bogart, War Costs and Their Financing, p. 227.

lic debts will be found in a table at the end of this chapter. It is sufficed to state here that the Treasury did not rely upon borrowing as a means of financing during the post-war period.

The attached table on transactions of public debts during the fiscal years 1920, 1921, 1922, 1923 and 1924 (~~see page 29~~) shows us that in 1920 the total receipts in public debts was $15,852,345,949.79 while the total redemptions were $17,036,444,271.25, or an excess of $1,184,098,321.46. over receipts. In 1921, the excess of redemptions over receipts was $316,848-229.68; in 1922, $1,014,068,844; in 1923, 613,674,280 and in 1924, 1,098,894,376. The total excess of receipts over redemptions in public debts for the five fiscal years was $4,227,384,045.14. This means that during the five years the United States Government reduced the total debt outstanding by more than four billions of dollars.[18]

Public Debts Outstanding at the end of the fiscal year 1924.

Bonds issued prior to the War		$883,703,790.
First Liberty loan	1,951,524,750	
Second Liberty loan	3,104,587,150	
Third Liberty loan	2,997,199,950	
Fourth Liberty loan	6,324,495,550	
		14,377,507,400
Treasury bonds		763,945,300
Certificates of Indebtedness		807,513,500
Treasury notes		3,735,309,400
War savings certificates		413,304,039.66
		20,981,386,429.66
Total debt whose interest has ceased		30,241,250.26
Debts baaring no interest		239,292,746.91
Total outstanding		21,251,120,426.83

Comparing this total of public debts outstanding with that at the end of the fiscal year 1919, we find that there was an decrease in public debts of $4,233,385,732.18. This decrease is

(18) Treasury Report, 1924, pp.150-1.

almost the same as the total reduction in public debts, which we estimated in the previous paragraph.

In this chapter we have attempted to find out to what extent the Treasury depended upon short-term and long-term borrowing during the war period and to what extent, if any, after the war. Our inquiry leads us to the conclusion that the Treasury almost depended exclusively upon certificate borrowing as a means of meeting the urgent need of the Government and it depended about 52 per cent upon long-term borrowing. Long term borrowing means an indefinite delay of paying for the costs of a war by securing the needed revenue during the period of armed conflicts from a group of people who are in the position of leanding. To reduce public debts by means of taxation means that the Government secures funds from the people as a whole and returns them to the group of people from whom the Government secured the advancement. In the long run, costs of a war have to be met either by taxation or by default.

We have also learned in this chapter that since the end of the fiscal year 1919, the Government has ceased long-term borrowing and it has gradually retired the enormous amount of public debt which it contracted during the war period. As late as the end of the fiscal year 1924, however, the total amount of public debt outstanding was about 21 billions of dollars. It remains to be seen how this amount of public debt of the United States incurred as a result of the war, will be retired and how long it will take to retire it. So long as the debt is not entirely redeemed, the task of financing the War will not be considered as completed.

Public Debts Transactions During Fiscal Years 1917-1924.[19]
(In 000 of dollars)

	1 9 1 7		1 9 1 8	
	Receipts	Redemptions	Receipts	Redemption
(1) 1st Liberty loan	1,466,335	----------	523,112	656
(2) 1st Liberty loan converted at 4%	---------	----------	--------	---
(3) 1st Liberty loan converted at 4¼%	---------	----------	--------	----
(4) 2nd Liberty loan	---------	----------	3,807,863	61,050
(5) 2nd Liberty Loan converted at 4¼%	---------	----------	--------	----
(6) 3rd Liberty Loan	---------	----------	3,243,045	14,935
(7) 4th Liberty Loan	---------	----------	--------	----
(8) Vicotry Liberty Loan	---------	----------	--------	----
(9) War savings certificates	---------	---------	352,769	2,971
(10) Certificates of Indebtedness	918,205	632,572	9,017,648	7,518,271
(11) Treasury notes	4,390	4,390	19,150	27,362
(12) Treasury bonds	---------	----------	--------	----
(13) Loan of 1908-1918	--------	----------	--------	----
(14) Funds for retiring Federal Reserve bank notes and National bank notes	37,293	40,564	10,279	21,611
(15) Deposits for postal savings	1,794	----------	1,020	-----
(16) Miscellaneous redemptions	----------	---------[18]	--------	20
(17) Total	2,428,017	677,544	16,974,889	7,706,879

(19) Figures obtained from Treasury Reports of fiscal years, 1917 1918, 1919, 1920, 1921, 1922, 1923 and 1924.

Public Debts Transactions During Fiscal Years 1917-1924. (continued). In 000 of dollars.

	1 9	1 9	1 9	2 0
	Receipts	Redemptions	Receipts	Redemptions
(1)	8	----------	.2	----------
(2)	----------	----------	----------	14,862
(3)	----------	4,003	----------	17,475
(4)	2	8,000	.9	10,007
(5)	----------	172,357	----------	231,142
(6)	932,106	201,660	498.4	296,338
(7)	6,959,504	165,000	5,078.7	405,221
(8)	3,467,844	----------	1,027.542.0	249,006
(9)	738,247	134,047	73,240.4	199,818
(10)	16,955,327	15,046,532	14,728,725.9	15,588,704
(11)	----------	19,150	----------	----------
(12)	----------	----------	----------	----------
(13)	----------	63,009	----------	416
(14)	22,644	23,717	17,071.9	23,424
(15)	289	----------	189.4	----------
(16)	----------	87	----------	26,424
(17)	29,075,966	15,637,566	15,852,345.0	17,036,444

Public Debts Transactions During Fiscal Years 1917-1924.
(Continued)

	1 9 2 1		1 9 2 2	
	Receipts	Redemptions	Receipts	Redemptions
(1)	----------	200	----------	----------
(2)	----------	---------	----------	----------
(3)	----------	---------	----------	----------
(4)	----------	8,770	----------	153,741
(5)	----------	---------	----------	----------
(6)	----------	51,155	----------	----------
(7)	2	39,499	----------	----------
(8)	12	332,587	----------	1,908,139
(9)	26,418	159,731	69,368	86,120
(10)	8,486,964	8,552,216	----------	2,625,572
(11)	319,191	---------	3,690,313	----------
(12)	---------	---------	----------	----------
(13)	---------	---------	----------	----------
(14)	40,186	37,460	107,183	107,251
(15)	178	---------	----------	----------
(16)	---------	152	----------	58
(17)	8,864,925	9,181,774	3,866,865	4,089,738

Public Debts Transactions During Fiscal Years 1917-1924.
(Continued)

	1923		1924	
	Receipts	Redemptions	Receipts	Redemptions
(1)	---------	---------	---------	---------
(2)	---------	----------	---------	---------
(3)	---------	---------	---------	---------
		194,357		866,428
(4)	---------	---------	---------	---------
(5)	---------	---------	---------	---------
(6)	---------	---------	---------	---------
(7)	---------	---------	---------	----------
(8)	---------	1,911,285	---------	86,751
(9)	202,386	15,996	163,866	87,457
(10)	---------	1,835,607	---------	1,032,270
(11)	3,796,804	143,339	808,828	---------
(12)	---------	8	---------	6
(13)	---------	582,157	---------	---------
(14)	90,547	74,414	25,453	33,084
(15)	---------	---------	---------	----------
(16)	---------	246	---------	45
(17)	4,089,738	4,735,412	1,001,148	2,106,043

CHAPTER III

TAXATION

In the previous chapter we endeavored to find out to what extent borrowing was used as a means of financing the War. Our inquiry led us to the conclusion that borrowing was used to a considerable extent during the war period and that during the period after the War there was no long-term borrowing at all. In the prexent chapter, we shall try to find out to what extent taxation was used a means of financing the War.

Before we begin our inquiry, let us try to find out to what extent taxation was used as a means of financing the Government prior to the War. The total amount of internal revenue of the fiscal year 1916 was classified in the Treasury Report of the same year as follows:

Internal Revenue of the Fiscal Year 1916.[1]

Custmms	$213,185,845.63
Ordinary	303,485,474.04
Emergency	84,278,302.13
Corporation Income tax	56,993,657.98
Individual Income Tax	67,943,594,63
Salws of Public Lands	1,887,661.80
Miscellaneous	51,889,016.28
Total	779,664,552.49

Of the amount of total internal revenues, about 213 millions of dollars were derived from ~~custom~~ customs and about 303 millions of

(1) Treasury Report, 1917, p.63.

dollars were derived from the so-called ordinary internal revenue which consisted of taxes on distilled spirits, manufactured tobacco, snuff, cigars and cigarettes, fermented liquors, miscellaneous items including receipts from oleomargarine, opium manufacturers, etc., playing cards, offers in compromise, etc. These two were the main sources which yielded more than 63 per cent of the total amount of internal revenue. Both of these sources were of indirect taxation; the former was from the taxes levied on imports while the latter chiefly on luxuries. It should be noted that both corporation income tax and individual income tax yielded very little revenue. The total yields were 56 and 67 millions of dollars respectively. In comparison with the two main sources which we have just mentioned, they were insignificant and negligible.

During the War Period. We ~~learnt~~ see from the above paragraph that Federal taxation was very light than most of the taxes were in the form of indirect taxation and that the total amount of direct taxation was negligible. Such were the conditions regarding taxation prior to the declaration of war. It was evident at the time when war was inevitable that much heavier taxation had to be imposed upon the people. Taxation, in fact, is the only ultimate method for financing a war. A government may be able to raise large sums for the time being by borrowing, but such borrowing has to be repaid by revenues from taxation in the end. Having realized this fact, the Government tried to depend as much upon taxation as possible. The fiscal year 1917, however, only showed a slight increase in

other forms of revenues from taxation. The budget of 1917 was made long before the commencing of hostilities between the United States and the Central Powers. The following table shows us the classified internal revenue for the fiscal year 1917:[2]

Internal Revenue for the Fiscal Year 1917.

Ordinary	$354,387,425.89
Emergency Revenue	95,297,553.88
Corporation Income Tax	179,572,887.86
Individual Income Tax	180,108,340.10
Custom	225,962,393.58
Sales of Public Lands	1,892,893.23
Miscellaneous	80,952,632.09
Total	$1,118,174,126.43

Comparing this table with that of 1916, we find that among the seven sources of internal revenue, five of them showed very little increase. The other two sources, however, showed a marked growth. The corporation income tax increased from about 56 millions of dollars to 179 millions in 1917 -- an increase of more than one hundred millions. The individual income tax showed an increase of about 113 millions of dollars —from 67 millions in 1916 to 180 millions in 1917. These two increases were mainly responsible for the increase in total internal revenue for the year 1917. These increases in both corporation income tax and individual income tax are largely due to the increased efficiency of the field force rather than to increase in rates of taxation. "The increase in the total tax collected from persons was more than 165 per cent over the collections of the previous year."[3] However, the rate of normal tax for both individual and corporation income tax in 1916 was 2 per cent as compared with 1 per cent for 1915 and previous years. The

(2) Treasury Report, 1917, p.56
(3) Treasury Report, 1917, p. 193.

increase of 1 per cent in rate undoubtedly played its part in the increase of the total receipt from income taxes.

The year 1917, however, added two new taxes under the classification of emergency revenue. The two new taxes were: the munitions manufacturers' tax and the excess-profits tax. Under Title III of the revenue act of September 8, 1916, it was provided that[4]

"Every person (including corporations, etc.), in addition to the income tax imposed by Title I of said act, shall pay for each taxable year an excise tax of 12½ per cent per annum upon the entire net profits actually received or accrued for said year from the sale or disposition of the articles named in section 301 of said Title III, and which are briefly described by the general term 'munitions'".

Under Title II, act of March 3, 1917, "in addition to the taxes imposed by then existing laws, levied a tax of 8 per cent on so much of the net income of corporation, joint-stock companies, etc., as is in excess of $5,000, plus 8 per cent of the actual capital invested in the property or business."[5] This act was made effective as of January 1, 1917 and was only applied to a limited number of corporations. Under Title II of the revenue act of September 8, 1916, was given, a proper interpretation of the law and the organization of the work in the bureau and in the field.

The new taxes did not yield very much in the fiscal year 1917 but they were to play a very important role in the financing of the War later on. The total yields of the new taxes together with the various emergency revenues were as follows:[6]

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(4) Treasury Report, 1917, p. 195
(5) Treasury Report, 1917, p. 196
(6) Treasury Report, 1917, p. 189

Classification of Emergency Revenues of 1917.

Wines, Champagne, liquers, cordials, etc.	$5,164,075.03
Grape brandy used in fortification of sweet wines	384,188.89
Fermented liquors (additional 50 cents per barrel)	30,365,168.73
Special taxes relating to manufacture and sale of tobacco, cigars, and cigarettes,	971,386.80
Special taxes, including corporations, bankers, brokers, proprietors of theaters, bowling alleys etc.	15,708,732.87
Schedule A (domcumentary stamps, etc.)	8,254,341.88
Schedule B (perfumery, cosmetics, etc.)	671,968.42
Excess profits tax	37,176.37
Estate Tax	6,076,575.26
Munition manufacturers' tax	27,663,939.63
Total	95,297,553.88

The table shows us that munitions manufacturers' tax yielded about 27 millions of dollars, which was a little bit less than the largest yield of the group—the additional 50 cents per barrel tax on femented liquors. The excess profits tax yielded a very negligible sum of 37 thousands of dollars.

Thus far, we find that there was no great increase in taxation. The fiscal year 1917, however, paved the way for the future. The fiscal year 1918 showed a great increase in internal revenue the total of which was $4,174,010,585.74. Comparing this sum with that of 1917, there was an increase of $3,055,836,459.31. Of the items of internal revenue, only the direct taxes showed great increases. In fact, customs showed a decline of about 45 millions of dollars due to decrease in trade. The following table[7] shows us the growth in direct taxation in 1918 in comparison with that of 1917:

Sources:	1917 (In 000)	1918 (In 000)
Distilled spirits, including wines etc.	192,111	317,553
Fermented liquors	91,897	126,255
Cigars, cigarettes manufactured tobacco and snuff	102,576	156,188
Oleomargarine	1,995	2,336

(7) Treasury Report, 1918, p. 368.

(Table continued)	1917	1918
Corporation on values of stock	10,471	24,996
Brokers, theaters, museums, circuses, bowling alleys, billiard and pool tables	2,865	2,285
Beverages (not elsewhere enumerated including sirups etc.)		2,215
Facilities furnished by public utilities, and insurance		77,228
Amusements admissions and club dues		28,616
Excises upon sales of automobiles, motor cycles etc.		36,977
Schedule A (stamp taxes) including playing cards	820	18,815
Estates	6,076	47,452
Munition manufacturers	27,663	13,296
Total receipts other than income and excess profits taxes	449,708	855,419
Income and excess profits taxes	389,685	2,838,999
Total receipts from all sources	809,393	3,694,619

The table shows that there were few ~~new~~ emergency taxes in 1918, and ~~But~~ these emergency taxes yielded very little. The great increase was in the income and excess profits taxes. The increase in those two taxes in 1918 was $2,479,314,746.67 over that of 1917. The total receipts from those two sources were 76.84 per cent of the entire collection of internal revenue in 1918 as compared with 44.44 per cent in 1917. Let us discuss the historical background of the income tax, the excess-profits tax separately.

The first income-tax law of October 3, 1913 specified that the tax on net incomes was 1 per cent for both individuals and corporations and, in case of individuals, the surtax rates were graduated according to the net income of the individual in excess of stipulated amounts. The amounts of exemption for the normal tax were $3,000 for single persons and $4,000 for married persons. The Act of September 8, 1916 changed the normal income tax rate from 1 per cent to 2 per cent for both indivi-

duals and corporations. It also authorized the levy of 12½ per cent tax on net incomes derived from the manufacture of munitions. The Act of March 3, 1917 imposed upon corporations, joint stock companies or association, insurance companies and partnerships a tax of 8 per cent upon the amount of the net income in excess of $5,000 in addition to the income tax imposed by the act of September 8, 1916 and 8 per cent upon the actual capital invested and used in the business. The tax imposed by the act of March 3, 1917 is known as the excess-profits tax. The Act of October 3, 1917 increased the rate of income and excess-profits taxes and superseded the excess profits acts of March 3, 1917. The new act provided that, in case of individuals, the exemption amounts were reduced to $1,000 for single persons and $2,000 for married persons. Incomes of individuals in excess of $3,000 for single persons and $4,000 for married persons were taxed with an additional rate of 2 per cent. In other words, a surtax of 2 per cent was levied on that class of incomes. In addition to the scale of sur-taxes provided by the Act of September 8, 1916, a scale of additional surtaxes were prescribed. Excess-profits taxes were levied on the incomes of individuals, partnerships and corporations. These taxes were known as war excess-profits taxes. Tables showing a complete schedule of rates for various taxes under various acts will be found on next page. The following table shows us the detailed returns of the income and war excess profits taxes:[8]

Kinds of Returns	Number	Tax Assessed.
Individual Income Tax:		
Income of $3,000 and less	2,391,929	$22,395,262.40
Incomes more than $3,000	665,623	592,613,241.12

(Table continued)

Kinds of Returns:	Number	Tax Assessed.
Corporation income tax	218,105	48,175,985.00
Insurance companies' income tax	2,117	3,072,081.66
Railroad companies' income tax	1,096	29,878,385.72
Individual excess-profits tax	31,432	88,731,080.21
Partnership excess-profits tax	37,546	93,125,653.79
Corporation excess-profits tax	117,742	2,045,713,085,48
Munitions manufacturers	2,248	9,418,839.47
Withheld at the source:		
Bond interes and dividends	6,433	14,194,066.28
Salaries, wages, rents, etc. nonresident aliens	1,141	473,034.00
Total	2,403,322	2,947,790,715.43
Amount received from offers in compromise		512,315.38
Additional taxes assessed on basis of verification and audit		16,508,017.89
Grand Total		2,964,806,045.70

Rates of the Various Income Groups According to the Law of September 8, 1916 and the Law of October 3, 1917.[9]

Surtax on net income between—	Law of September 8, 1916,%	Law of October 3, 1917, per cent	Total surtax, per cent
$5,000 and $7,500	None	1	1
7,500 and 10,000	None	a2	2
10,000 and 12,500	None	3	3
12,500 and 15,000	None	4	4
15,000 and 20,000	None	5	5
20,000 and 40,000	1	7	8
40,000 and 60,000	2	10	12
60,000 and 80,000	3	14	17
80,000 and 100,000	4	18	22
100,000 and 150,000	5	22	27
150,000 and 200,000	6	25	31
200,000 and 250,000	7	30	37
250,000 and 300,000	8	34	42
300,000 and 500,000	9	37	46
500,000 and 750,000	10	40	50
750,000 and 1,000,000	10	45	55
1,000,000 and 1,500,000	11	50	61
1,500,000 and 2,000,000	12	50	62
Over $2,000,000	13	50	63

Excess Profits tax (act of October 3, 1917)[10]

If profits from invested capital above deductions are:	Rate on Taxable net income
Below 15 per cent	20%

(8) Treasury Report, 1918, p.943.
(9) E. L. Bogart, War Costs and Their Financing, p. 278

Table showing Excess profits Tax Rates (Act of October 3, 1917)[10] continued.

If profits from invested capital above deductions are:	Rate on Taxable Net income is
15 to 20 per cent	25%
20 to 25 per cent	35
25 to 33 per cent	45
Over 33 per cent	60

Inheritance Tax, Act of October 3, 1917.[11]

Net Taxable Estate	Total rate, per cent
Under $50,000	2%
$50,000 and 150,000	4
150,000 to 250,000	6
250,000 to 450,000	8
450,000 to 1,000,000	10
1,000,000 to 2,000,000	12
2,000,000 to 3,000,000	14
2,000,000 to 4,000,000	16
4,000,000 to 5,000,000	18
5,000,000 to 8,000,000	20
8,000,000 to 10,000,000	22
Over 10,000,000	25

Estate Tax under the Act of September 8, 1916.[12]

Net Taxable estate	Rates
Not exceeding $50,000	1
50,000 to 150,000	2
150,000 to 250,000	3
250,000 to 450,000	4
450,000 to 1,000,000	5
1,000,000 to 2,000,000	6
2,000,000 to 3,000,000	7
3,000,000 to 4,000,000	8
4,000,000 to 5,000,000	9
Over 5,000,000	10

The preceding table showing the detailed returns of the income and war profits taxes indicates that the corporation excess-profits tax yielded in the fiscal year 1918 the amount of $2,045, $13,085.48 which was much greater than the yield of any other

(10) E. L. Bogart, War Costs and Their Financing, p. 280
(11) E. L. Bogart, War Costs and Their Financing, p.p283
(12) E. L. Bogart, War Costs and Their Financing, p. 274.

tax. Comparing the receipts from excess-profits tax in 1918 with those in 1917, we find that there was an increase of more than two billions of dollars. The total yield in the fiscal year 1917 was only 27 thousands of dollars. The next great incfease was the individual income tax. The yield in 1918 from incomes groups of more than $3,000 alone was more than 592 millions of dollars, while the total receipt from individual income tax in 1917 was only 180 millions of dollars or so.

Our study of the fiscal year 1918 shows us that there was an increase of about 3 billions of dollars of revenue from taxation, andof this great increase the excess-profits tax and the individual income tax were chiefly responsible. Let us now turn our attention to the fiscal year 1919.

The total amount of receipts from internal revenues were increased by a little less than 500 millions of dollars—the total amount in 1919 being $4,647,603,852.46 in comparison with the aggregate amount of $,174,010,585,74 in 1918. The increase was not due to increase in rates of taxation. The total amount of receipts from income and excess-profits taxes were 2,600, 762,734.84 or a decrease of about 238 millions of dollars over the total receipts from those two sources in 1918. The receipt from the so-called ordinary and emergency sources increased about 382 millions which more than offset the decrease of 238 millions in income and excess-profits taxes. There was little change in receipts fromcustoms for both years. The receipts from the so-called miscellaneous group increased about 320 millions of dollars. Of the increase of 320 millions more than 214 millions were due to increase in interest of ob-

ligation of foreign governments to the United States.

Summary of the War Period. To sum up for the three fiscal years, the receipts from taxation during the three years were as follows:[13]

Year	Receipts from Taxation
1917	$1,035,328,601.11
1918	3,878,802,473.52
1919	4,023,659,619.63
Total	8,937,790,694.26

The table shows us that during the three years the United States Government raised about $8,937,790,694.26 from taxation. Comparing this total with the total expenditures of the Government during the same interval, we find that the Government depended as much as 25.7 per cent upon taxation as a means of financing the War—the percentage figure being obtained by dividing $8,937.790,694.26 by $34,775,200,000. The net amount from borrowing during the same period was $24,106,381,566.89 (see Chapter II page 24), or about 70 per cent of the total expenditures of the period. Adding the receipts from the two main sources together, we find that the United States Government secured $33,044,172,261.15 or about 95 per cent of the total expenditures from taxation and borrowing. The difference between receipts and total expenditures for the period was met by receipts from sales of public lands and miscellaneous resources. It should be noted here that in addition to the total amount of long-term borrowing, the Government issued a total amount of $4,979,191,000 of certificates of indebtedness in anticipation of tax receipts (see Chapter II, p. 17). Consequently, the Government depended

(13) Receipts of taxation include all sources of internal revenue except the items of sales of public lands and miscellaneous sources.

very little upon taxation as a temporary means of financing.

The increase in taxation during this period is evident. Prior to the declaration of war, the United States Government imposed very little burden upon the people. The Government at that time depended chiefly upon taxation on luxuries such as distilled liquor, fermented liquor, cigars, cirgarettes etc. and upon custom. The Federal income tax yielded a ridiculously small sum of revenue. Since the declaration of war, the Government imposed heavy taxation upon the people. It increased the rates of old taxes and, at the same time, imposed new ones. The rates of income tax as well as of the estate tax were greatly increased. Since the passing of the Law of October 3, 1917, the surtax on incomes in excess of $2,000,000 was 63 per cent. This rate was almost confiscatory in nature and could not be very well increased without discouraging savings of the country. Among the new taxes imposed were the munitions manufacturers', the war excess-profits, capital stock and numerous minor taxes such as on theatre tickets etc. The result was that by the end of the War period the total receipt from taxation was about six times as much as it was in 1916.

Our analysis in the previous paragraph showed us that the United States Government met more than 25 per cent of its need during the war period with receipts from taxation, is indeed very astonishing. The United States Government perhaps depended more upon taxation as a means of meeting the war costs during the period of hostilities than any other belligerent nation. The fact that she accomplished all this within a very short while makes the result the more praiseworthy. How-

ever, we must bear in mind that the longer a nation remains in war, the more difficult it would be for its government to depend upon taxation to meet its share of war costs. The reason is quite evident. The costs of war grows as war continues, but increase in taxation cannot be continued indefinitely. It is difficult to estimate what would have been the maximum yield from taxation in the United States, had the war continued, but it is safe to state that it could not have been more than 6 billions a year — or an increase of two billions of dollars in tax receipts over that of the fiscal year 1919 which amounted to $4,647,603,852.46. Thus, if the United States remained in the War for another two years or so, the percentage of total war costs met by receipts from taxation would have been much smaller than 25 per cent.

The Period Between 1920 and 1924. In the previous paragraphs, we learnt to what extent the United States Government used taxation. In our Chapter on Borrowing, we also learnt that since the early part of the fiscal year 1920, the Government slowly but gradually reduced its debt. Our inquiry here is : to what extent taxation was used during the post-war period to meet the costs of the War?

The fiscal year 1920 showed a further increase in receipts from taxation. The yield from income and profits taxes was $3,956,936,003.60 as compared with $2,600,783,903.70 for the fiscal year 1919.[14] This increase was partly due to the fact that the revenue act of 1918 allowed the installment payments of income and profits taxes of 1919 be deferred to 1920.

(14) Treasury Report, 1920, p.194.

Although there was no increase in taxation in 1920, the strain of the heavy taxation since 1918 began to be felt. The high surtax rates on income tended to drive the high income class of people to invest their savings in tax-exempt securities of the Government, which attracted the capital at the expende of the industrial and railroad securities. By so doing the wealthy class of the people were able to avoid the heavy surtax on their net incomes. The heavy excess-profits tax tended to discriminate against conservatively financed corporations. As a result, corporations tended to be oversapitalized. The unavoidable strain of heavy taxation drew the attention of the Government and called for readjustment of rates of the various taxes.

Real progress in reduction of taxation was not achieved until late in 1921 when the revenue act of 1921[15] was passed. The important changes made by this new law was threefold: (1) The surtaxes on incomes were reduced to a maximum of 50 per cent. It may be recalled that the law of October 3, 1917 imposed a maximum of 63 per cent on incomes over $2,000,000 a year. Rates for incomes under $2,000,000 were also reduced accordingly.[16] (2) The excess-profits taxes were repealed and a flat additional tax of 2½ per cent on net incomes of corporation was substituted. This was quite a sharp reduction. It may be recalled that the law of October 3, 1917 imposed a maximum tax of 60 per cent on profits over 33 per cent of the capital. (3) The transportation and insurance taxes of title V of the old law of October 3, 1917 were also repaaled. The new law also

(15) Treasury Report, 1921, p.10
(16) For complete information of surtax rates on various groups of incomes see Treasury Report, 1921, p.167.

contained many other provisions which tended to simplify the old law and improve its administration, such provision as allowing lossess sustained by a business corporation in one year and deducted from the profits of the two succeeding years. This law was passed in late in 1921 and did not become effective until the fiscal year 1923. The estimated reduction in receipts from taxation for the fiscal year 1923 was $535,000,000.

As we have just explained the revenue act of 1921 did not apply to the fiscal year 1921 nor to the fiscal year 1922. The total receipts from internal revenue in 1921 were $5,585, 475,693.85, a reduction about 1,120 millions of dollars over the receipts of 1920. The total receipts from income and excess-profits taxes were $3,228,137,673.75--about 670 millions of dollars less than those of 1920. In 1922 there was a further reduction in both internal revenue and receipts from income and excess-profits taxes. The amount of total internal revenue collected was $4,109,104,150.94, a reduction of more than 1,400 millions of dollars. The total decrease in internal revenue was chiefly due to decrease in receipts from income and excess profits taxes. The total receipts from income and excess-profits taxes were $2,068,128,192.67, a reduction of more than 1,100 millions of dollars. The fiscal year 1923 showed further reduction in internal revenue as the law of 1921 became effective. The total amount of internal revenue was $4,007, 135,480.56 which was about 100 millions less than that of 1922, but the total receipts from income and profits taxes were only $1,678,607,428.22, a reduction of about 400 millions of dollars. The fiscal year 1924 showed very little change. The total

amount of internal revenue was $4,012,044,701.65 as compared with the total of $,007,135,880.56 in 1923. The amount of income and profits taxes was $1,842,144,416.41, a slight increase of about 170 millions of dollars.

In the fiscal year 1924, there was further agitation for tax reduction. The revenue bill of 1924 was passed during the year and was reluctantly signed by the President. This new law further reduced the surtaxes on incomes. It reduced the maximum rate of 50 per cent imposed by the revenue act of 1921 to a maximum of 40 per cent.[17] However, the rate on estate tax was increased from the maximum rate of 25 per cent according to the law of October 3, 1917 to 40 per cent according to the new law. In addition, a gift tax was imposed. This tax was intended to prevent avoiding estate taxes by giving away part of one's estate before death. This new law was an attempt to reduce the burden of income tax without any reduction in revenue.

We learnt from above paragraphs that the taxation imposed by the revenue act of October 3, 1917 proved to be too heavy. Since the fiscal year 1920, attempts have been made to reduce the taxes as much as possible. As a result the revenue acts of 1921 and 1924 were passed. However, inspite of reductions, the tax burden in 1924 was much heavier than it was in 1916. The following bable shows us the receipts from taxation during fiscal years 1920-1924[18]

Year	Amount in dollars.
1920	$5,722,685,804.31
1921	4,887,998,711.23
1922	3,569,696,643.97
1923	3,186,401,627.49
1924	3,340,794,532.07
	20,707,577,319.07

(17) Treasury Reprt, 1924, p. 263.

The table shows us that during the five-year period, the Government raised a total of 20,707 millions of dollars from taxation (including indirect taxation). The total amount of ordinary expenditures for the period was 20,973.4 millions of dollars. The discrepency was more than met by the receipts from sales of public lands and miscellaneous items. In fact, both fiscal years 1923 and 1924 showed a surplus balance despite of the reduction of part ofthe public debt was charged to ordinary expenditures of the Government. This shows that the Government almost depended exclusively upon taxation as a source of revenue for the Government.

The War revolutionized the fiscal policy of the United States Government. Prior to the Civil War, the United States Government depended chiefly upon custom receipts. From the Civil War until the World War, it placed its reliance on taxes on distilled spirits and fermented liquors. Although the income tax was introduced by the law of 1913, the total yield from this source was much smaller than that from customs and luxuries such a sliquor and cigars and cigarettes before 1917. When War was declared, the need of the Government was increased ~~by manyfolds~~ greatly. The Government, wisely or otherwise, adopted the policy of relying as much as possible on taxation as the means of meeting war costs. But, on what scurces were taxes to be imposed? The Government could not very well increase the custom rates inasmuch as the country as a whole needed importation of raw materials from foreign lands in order to ~~keep~~ help the manufacturing industries of the United States maintain

(18) Figures obtained by subtracting receipts from sales of public lands and miscellaneous items from total internal revenues of each year.

their high rate of production. Nor could the Government raise large sums from taxation on distilled spirits and liquor. The demand for liquor and cigars etc. was rather a fair elastic one. If taxes on those articles were raised to such a point that their prices became prohibitive, then the people as a whole would consume less than they did before and the producers in turn would produce less. Such a curtailment in consumption and production would tend to offset any increase in receipts due to high rates of taxation. Nor could the Government raise any considerable sum from sales of public lands and other miscellaneous items. The amount of public lands avialable for sale were limited, and the miscellaneous items were so uncertain that the Government could not rely upon as a regular source of revenue. The only way left was for the Government to raise income tax and to impose new taxes. This was exactly what the Government did.

We learnt that theincome tax was raised by the law of September 8, 1916 and again by that of October 3, 1917. The receipt from income tax was increased to such an extent that it soon overshadowed the receipt of any other old taxes. In addition new taxes were imposed. The most important ones were, the excess-profits tax, the war excess-profits tax, the munition manufacturers' tax, the transportation and insurance tax and capital stock tax. It should be added here that the estate and inheritance tax was also increased although the receipt from this source was not as great as that from income tax. The total yield from those new taxes were tremendous. The corporation excess-profits tax in 1918 alone yielded more

than 2 billions of dollars—a sum which was about three times the total receipts from internal revenue in 1916. Those new taxes together with the increased income and estate taxes enabled the Government to depend about 25 per cent of its total expenditures during the war period upon taxation.

However, such heavy taxation could not be continued very long. About a year after the signing of armistice, agitation began to cut taxes. The agitation soon precipitated into the revenue act of 1921 whereby the excess-profits taxes, the transportation and insurance taxes were repealed and the income tax rate was reduced to a considerable extent. The munition manufacturers' tax automatically repealed itself inasmuch as the ending of hostilities curtailed the manufacturing of munitions to such an extent that it was impracticable to impose any tax at all. The revenue act of 1924 further cut the income tax rates. However, no matter how much the income tax rates are reduced in the future, it seems to be that the receipt from income tax will become the main source of revenue for the Federal Government for many years to come. Large amounts of public debt contracted during the war period remains to be retired. To retire such debt, the Government must again rely upon taxation.

We learnt from the chapters on borrowing and taxation that to what extent the Government depended upon them as means of financing the War. We must bear in mind that large amount of borrowing and taxation might not have been possible without inflation. To certain extent, inflation is absolute necessary when a government borrows or taxes in excess of the savings of the people. To discuss inflation and to find out to what ex-

tent inflation was used as a means of financing the War will be our inquiry in the next chapter.

Internal Revenues for the Fiscal Years 1916-1924.[17]

(In 000 of dollars)

Year	Custom	Ordinary	Emergency	Income and profits	Sales of Public lands
1916	213,185	303,485	84,278	124,937	1,887
1917	225,962	354,387	95,297	359,681	1,892
1918	182,758	857,043		2,838,999	1,969
1919	183,428	1,239,468		2,600,762	1,404
1920	323,536	1,442,213		3,956,936	1,910
1921	308,025	1,351,835		3,228,137	1,530
1922	356,443	1,145,125		2,068,128	-----
1923	561,928	945,865		1,678,607	-----
1924	545,637	953,012		1,842,144	-----

Internal Revenues for the Fiscal Years 1916-1924.

(In 000 of dollars) continued.

Year	Miscellaneous Items	Total
1916	51,889	779,664
1917	80,952	1,118,174
1918	293,238	4,174,010
1919	622,539	4,647,603
1920	980,448	6,705,044
1921	695,946	5,585,475
1922	539,407	4,109,104
1923	820,733	4,007,135
1924	671,250	4,012,044

(17) Figures obtained from Treasury Reports of 1916, 1917, 1918 1919, 1920, 1921, 1922, 1923 and1 1924.

CHAPTER IV

INFLATION.

Definition. The word 'inflation' has been frequently used without a clear-cut definition. To give a precise meaning which will stand all kinds of test, appears to be impossible. The Federal Reserve Board of the United States defined it as "the process of making additions in credits not based upon a commensurate increase in the production of goods."[1] This is the most popular concept of inflation, which has, from time to time, been expressed by economists in various forms of phraseology. This concept is evidently derived from the quantity theory of money. It will be recalled that, according to the quantity theory of money, $PT = MV+M'V'$. Thus, if $MV+M'V'$ is increased, there must be a corresponding increase in either T or P in order to maintain the equation. Defining in the term of this equation, inflation means an increase of $MV+M'V'$ without a corresponding increase in T. Or, putting the same idea in a different way, it means an increase in P and $MV+M'V'$ without a corresponding increase in T. For the purpose of the present study, 'inflation' will be used in the sense of the aforecited explanaion according to the equation of exchange, i.e., an increase in P and $MV+M'V'$ without a corresponding increase in T.

It is to be noted that inflation does not merely mean an expansion of money and credit nor a rise in price-level. If

(1) Federal Reserve Bulletin, July 1, 1919, p. 614.

production of goods available for trade increases, there must be an increase in purchasing power (MV+M'V') in order to maintain the price at a given level, such increase in purchasing power is not considered as inflation. On the other hand, a mere increase in price level does not necessary mean inflation. There are so many factors which may affect a price level that it is difficult if not impossible to determine whether or not a certain case of a rise in price level is due to inflation. In fact economists disagree as to whether inflation is a cause or an effect of rising price level. According to the equation of exchange, either an increase in P or in MV+M'V' without any increase in T will lead to infaltion. The point of dispute lies in the fact that whether P is increased first or MV+M'V' is increased first. If the rise of P takes place first, then inflation is an effect, not a cause of the rise of price level. If, on the other hand, the increase of MV+M'V' takes place first, then the rise of P is the effect of inflation. Whatever be the cause or the effect, an increase in one will lead to a corresponding increase in the other (assuming that T remains constant). Their intimate relationship adds confusion to the matter.

The abnormal conditions during the War further complicate the question. A price level is composed of a number of prices. Individual prices are chiefly determined by the relative supply and demand of a number of commodities concerned. If this be the case, then a price level ought to be determined, directly or indirectly, by the relative supply and demand of commodities. Following the outbreak of the Great War there had been a great demand for materials and labor from the belligerent countries.

Such demand would undoubtedly raise prices until a new equilibrium between supply and demand is reached. In this case the rise in price level seems to have no bearing on the increase of purchasing power. In fact such a rise in price level will lead to expansion of purchasing power. On the other hand, since the armistice, such an abnormal demand for both materials and labor no longer exists. If this abnormal demand were the only cause for the rise of price level, then price level during that period should show a tendency of decline. But we shall soon find that this was not the case. Instead the price level continued to mount. From this simple reasoning, we can come to the conclusion that there are several factors which may be responsible for a rise or a decline of price level and that, in order to determine the exact relationship between price level and inflation, a thorough study of the movements of the former is amply justified.

Thus far we have only dealt with the relationship between inflation and price level. The question which may logically be asked is: what is the connection between inflation and war finance? According to Professor Gustav Cassel of the University of Stockholm,[2] "an inflation has taken place in every one of the countries involved in the war." If this is the case, then there must be some affiliation between inflation and war. Inflation, as Professor Cassel asserts,[3] is caused by the inability of a government to get at its disposal in the form of real savings enough revenue for it to meet its expenditures.

(2) Annals of American Political and Social Science, Vol. 89, May 1920, p.259
(3) Do.

It makes no difference whether the method used to get revenue is war borrowing or taxation. In either case, so long as there is a shortage in revenue in the form of real savings, there is to that extent inflation. It must be recognized that expenditures during a war are unusually heavy. The total amount of real savings in a country is limited; while the total money costs of a war is limitless. Under the titantic scale of a modern war it seems to be matter of time when the total revenue in the form of real savings will be inadequate to meet the huge sum of expenditures and inflation will take place. Thus, in conducting a modern war, it is almost impossible to avoid inflation entirely.

It is interesting to note here that inflation is not an inherent defect of either war borrowing or taxation. The fallacy that inflation is primarily caused by war borrowing has been disapproved by economists of to-day. Thus, Professor E. R. A. Seligman of Columbia University writes:

"Inflation is due primarily to other and more fundamental causes than either loans or taxes; and the attempt to avoid inflation by abandoning the use of loans will almost inevitably lead to far greater inflation in the end."4

There are two kinds of inflation: one is by means of expanding the fiat money; and the other is by means of expanding deposit currency. The former is chiefly by means of increasing MV; while the latter, M'V'. The bitter experience of Germany, Austria, Russia and France in increasing fiat money has clearly demonstrated the evils of that kinds of inflation. Furtunately, United States was spared from such experience. Inflation in the United States was chiefly in the form of expanding deposit currency.

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(4) E. R. A. Seligman, Loans v. Taxes, Annals of American Political and Social Science, Jan. 1918, p. 75.

Having had a general idea of inflation in mind, we shall now proceed to study it from the actual experience of the United States. In order to ascertain the extent of inflation taken place in the United States, we have to find out three things; (1) the extent of increase of currency and deposits; (2) the extent ofincrease of production; and (3) the extent of rise in price level. In view of the many factors that may cause a rise in price level, we shall divide the whole period from 1914-1924 into three periods: that from 1913 to April 1917; that from April 1917 to November 1918; and that from November 1918 to 1921.

The period from 1913 to April 1917. The period from 1914 to 1917 may be called 'pre-war' period from America's point of view. It will be recalled that during this period of the Great War, the United States was still in a state of neutrality. A comparison between conditions of this period and those of the succeeding two periods may throw some light on the problem of inflation as a means of war-financing.

The extent of expansion of currency and credit. In order to find ut whether there was any inflation during this period, the first thing we have to find out is the extent of expansion of currency and credit, if any. The following two tables furnish us the desired information.

Monetary circulation of the United States from Calendar years 1913-1917.[5]

Year	Amount in circulation in 000,000	Index number
1913	3390	100

(5) American Economic Review, 1919 Supplement p. 95.

Table showing monetary circulation continued.

Year	Amount in circulation in 000,000	Index number
1914	3505	103
1915	3682	109
1916	4159	123
1917	4914	145

Growth of bank deposits from calendar years 1913-1917.[6]

Year	Amount in deposits in 000,000	Index Number
1913	12,678	100
1914	13,430	106
1915	14,411	114
1916	17,840	140
1917	21,273	168

From the tables we find that the total amount of monetary circulation in the United States increased from 100 per cent in 1913 to 123 per cent in 1916 and 145 per cent in 1917. The fact that United States entered the War in April 1917 might have accelerated the increase of currency circulation in 1917, but it is beyond doubt that there had been a steady increase in currency since the outbreak of the Great War. The increase in bank deposits was even more rapid. The total amount of bank deposits increased from 100 per cent in 1913 to 140 per cent in 1916 and 168 per cent in 1917. Both of these tables appear to support the contention that M and M' in 1917 had increased about 50 per cent since 1913.

The extent of increase in velocity. It is difficult to ascertain actuately the extent of increase in velocity. Any attempt to determine the exact rate of money and deposit is, at its best, a mere estimate, and is subject to condemnation. Professor Irving Fisher estimated the velocity for both money

(6) American Economic Review, 1919 Supplement, p. 95.

and deposits as follows:[7]

Year	Velocity of money	Index Number	Velocity of deposits	Index Number
1913	21	100	54	100
1914	17	80.95	47	87.04
1915	22	104.76	53.6	98.52
1916	24	114.28	60.2	114.81
1917	30	142.86	92.4	170.37

We learn from this table that velocity of money increased from 100 per cent in 1913 to 114.28 per cent in 1916 and 142.86 per cent in 1917 and that the velocity of deposits increased from 100 per cent in 1913 to 114.81 per cent in 1916 and 170.37 per cent in 1917. The data in this table seems to indicate that the velocity for both money and deposits declined in 1914 and increased rapidly since 1916. There is a striking similarity between movements of the amount of money and deposits and those of their respective velocity. It will be recalled that the amount of money in circulation increased 45 per cent from 1913 to 1917 while its velocity increased 42.86 per cent and that the amount of deposits increased 68 per cent in comparison with an increase of 70.37 per cent for its velocity during the same spell of time. It seems to indicate that increases in velocity tend to coordinate with those in amounts. However, whether this is an incidental coincidence or an established rule remains to be seen.

A study in bank clearings may further enlighten us on this subject of velocity of money and deposits. Figures for 1913-1917 appear as follows:[8]

Bank Clearing of the United States

Year	Total amount (in billions)	Index number
1913	170	100

(7) Absolute figures obtained from Prof. Fisher's Annual Equa-

Banks Clearing continued.

Year	Total amount (In billions)	Index Number
1914	155	91.18
1915	188	110.59
1916	262	154.12
1917	307	180.59

The figures show that bank clearings increased 80.59 per cent from 1913 to 1917. This increase was even greater than that of velocity estimated by Professor Fisher. The establishment of Federal reserve clearing and collecting system during this period in question diverted many checks from clearing channels and made the index number of bank clearings not as reliable as it otherwise would have been. However, the coming of this system into existence could have only underestimated the growth of bank clearings in the United States. We may conclude, therefore, that 80.59 per cent is a conservative estimate of the increase of bankingclearings from 1913 to 1917.

To sum up, it appears that during this period MV increased roughly about 40 to 50 per cent and M'V', 70 to 80 per cent. We have no doubt that there was considerable expansion in MV-M'V'. The question which now confronts us is: whether this expansion of MV+M'V' was due to a corresponding increase of T or to some other cause.

The Growth of Business and production. To answer this inquiry we must first of all determine the extent of growth of business and production. The report of War Finance Committee of the American Economic Review[9] estimated the growth as follows:

(7) tion of exchange published in American Economic Review, 1914 1915, 1916, 1917 and 1918.
(8) F. W. Kemmerer, American Economic Review, June, 1918, p.257.
(9) American Economic Review, Supplement, 1919, p.94.

Growth of Business 1913-1917.

Year	Index Number
1913	100
1914	99
1915	103
1916	107
1917	112

The above data show that production increased 12 per cent from 1913 to 1917. The increase was rather constant and only the year 1914 showed a slight decline. Professor E. E. Day estimated the growth during the same period as follows:10

Index of Physical Production Unadjusted and Weighted according to values in 1909.

Year	Index number	Index number using 1913 figure as 100
1913	105.2	100
1914	102.9	98.76
1915	110.8	105.32
1916	117.2	111.41
1917	119.8	113.88
1918		

This shows that the growth from 1913 to 1917 was 14.6 per cent according to Professor Day's original data and 13.88 per cent, if we consider 105.2 in 1913 as 100. Whichever data we use the growth of production and business appeared to lie between 12 per cent and 15 per cent. Comparing this growth with that of money and deposits and their respective velocity, we find that the increase of T lagged far behind that of MV+M'V'. If this were the case, then there must have been an inflation during the period.

The rise of price level. We learn from the equation of exchange that, if there be an increase in MV+M'V' without a corresponding increase in T, then there must be an increase in P.

(10) E. E. Day, The Review of Economic Statistics, 1921, p.20

Having studied the relative increases of MV+M'V' and T, let us now examine the price level with a view of comparing its relative growth with that of total circulation and trade. The report of War Finance Committee of the American Economic Review gave the price level index as follows:[11]

Index of Price Level from 1913 to 1917.

Year	Index Number
1913	100
1914	99
1915	100
1916	123
1917	175

This shows that there was practically no change from 1913 to 1915 and that since 1916 the price level increased rapidly. The wholesale prices for this period were given in Monthly Bulletin of the Bureau of Labor Statistics as follows:[12]

Index number of wholesale prices from 1913 to 1917.

Year	Index number
1913	100
1914	98.25
1915	100.66
1916	126.75
1917 (end of Apr.)	161.25
1917 (end of Dec.)	177.08

This table shows that wholesale prices increased about 61.25 per cent from January, 1913 to April 1917 and 77.08 per cent to December 1917. It is to be noted that the price level did not rise until 1916 when it began to jump by leaps and bounds. An analysis of previous data also indicates that the expansion of MV+M'V' and T was slow and insignificant until 1916 when the growth became rapid. Another fact to be emphasized is that the rise of price level was out of proportion to that of MV+M'V' and

(12) Figures obtained from monthly Wholesale Prices given in Wholesale Price Series, Bureau of Labor Statistics, Decem- 1923, pp30-31.

(11) American Economic Review, Supplement, 1919, p. 102.

T. It should be remembered that the increase in MV was about 40 to 50 per cent and that of M'V' about 60 to 70 per cent and that of T about 14 per cent. Since part of the increase of MV-M'V' was offset by the growth of T, the rise of price level should, if there was no inflation, be to that extent less than the rise of MV+M'V', assuming that other things being equal. Instead, we find that the rise in P was even more sensational than that of MV+M'V'. What then caused the 'excessive' rise in price level and what caused the late spur since 1916?

As we have already stated, price level may be raised by an increase in demand for commodities whose prices jointly form a price level. If demand for a number of commodities increase, then price level would be increased irrespective of the total amount of circulation. The Great War taxed the resources of belligerent countries to such an extent that, as years went on, they had to depend more and more upon the United States for the supply of food, munitions and raw materials. Thus, as the War went on, there was a greater and greater demand for materials and labor in America. The almost unlimited demand bidding for a limited supply of raw materials and labor caused a general rise in prices. A study of the imports and exports of the United States during this period will give us some idea of the relative increase in demand for commodities.

Year	Amount in 000,000	Total value in Percentage	Index number of price level	% increase in export adjusted according to 1913 price level
1913	2,484	100	100	100
1914	2,113	85.89	99	87

(13) Export figures obtained from Monthly Summary of Commerce and Finance Bureau of Foreign and Domestic Commerce, 1918, 1919 and 1920.

(Table Continued)

Year	Amount in 000, 000	Total value in %	Index Number of price level	% increase in exports adjusted according to 1913 price level.
1915	3,554	143.10	100	143.10
1916	5,482	220.72	123	179
1917	6,233	250.94	175	146

This shows that total amount of exports in value in 1916 was more than twice as much as that in 1913 and that in 1917 was two and a half times more. However, much of the increase in value of exports was due to the rise pf price level. An equal amount of exports in 1917 would be 75 per cent more in value than it would have been in 1913. In order to get an idea of the expansion in units of goods, we have to adjust the figures to 1913 price level. The method which is being used here is to divide the annual total value in percentage figures by the corresponding index number of price level. Thus, in 1916 the percentage of exports in value was 220.72 and the index number of price level was 123. Divide 220.72 by 123, we get approximately 179. This means that altho the increase in units of goods being exported was only 79 per cent. Thus, the increase of exports in actual quantity in 1915, 1916 and 1917 was 43, 79, and 46 per cent respectively. In 1914 there was a decline of 13 per cent.

Let us now examine the import figures with a view of comparing its relative growth with that of exports. The following table shows us the amounts of imports in dollars and in percentages.[14]

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(14) Absolute amounts obtained from Monthly Summary of Commerce and Finance, Bureau of Foreign andDomestic Commerce, 1918, 1919 and 1920.

Imports of United States, Calendar Years, 1913-1917.

Year	Amount in millions	Total value in %	Index number of price level	% increase adjusted according to 1913 price level.
1913	1,792	100	100	100
1914	1,789	99.81	99	100.82
1915	1,778	99.22	100	99.22
1916	2,291	133.42	123	108.47
1917	2,952	164.70	175	94.69

This shows that there was practically no increase in quantity of imports except in 1916 when there was a slight increase of 8.47 per cent. Comparing this with increases of 43, 79 and 46 percenta in 1915, 1916 and 1917 in exports, we may conclude that during 1915, 1916 and 1917 there was a greater demand of American materials and resources from foreign countries. Comparing this increase in demand with the increase in physical production of the United States (see tables under growth of business), we may further conclude that the increase in demand of goods was in excess ofthe increase in production. Under such circumstances the price level will undoubtedly rise beyond the scope of the equation of exchange until a new equation of exchange is formed, i. e., until MV-M'V' and T have increased to such an extent that the equation will again be balanced.

We may now turn our attention the second question. It may be recalled that both price level and total circulation and its velocity did not materially increase until 1916 (see tables under the extent of expansion of currency and credit and the price level index number). It is true that both currency and deposits showed a slight increase in 1914 and 1915, but part of the increase was offset by a slight decrease in velocity. In next paragraph we shall try to explain this slight increase in circulation. It may sufficed to state here that the slight in-

crease has no material bearing upon the question which we are concerned here. On the other hand, the demand of commodities from foreign countries in 1915 showed an increase of 43 per cent. It seems to bo indicate that the great increase in demand for commodities in 1915 caused the rise of price level in the last few months of 1915 and 1916 and that the increase in price level in turn caused the 'abnormal' expansion of circulation, i.e. inflation in 1916. This is not intended to be an evidence of the 'cause and effect' controversy between price level and inflation. It is intended to indicate that in this particular period the rise of price level seemed to precede inflation.

With regards to a slight increase in money and deposits in 1914 and 195, it should be noticed that velocity of circulation and deposits decreased in 1914 about 19 and 13 per cent respectively (see table under the extent of increase in velocity). Thus, an increase of 3 and 6 per cent in money and deposits in 1914 was more than offset by a corresponding decrease of 19 and 13 per cent in velocity. In 1915 there was an increase of 9 per cent and 14 per cent in money and deposits with an increase of 4.76 and a decrease of 1.48 per cent in their respective velocity. However, during the same year, there was also an increase in business and production of 3 to 6 per cent. The slight difference between the increase in purchasing power ($MV+M'V'$) and that of business and production (T) may be influenced by the enormous growth of foreign trade. The ultimate result of this growth was the great expansion in price level and money and credit in 1916.

A Summary of the Period. From this brief study of the 'pre-war' period, we may make the following conclusions:

1. There was an inflation without war-borrowing.

2. That the rise of price level in this period was chiefly due to increasing demand for commodities and materials and that inflation seems to be the effect of the rise of price level in this case.

After having reviewed the 'pre-war' conditions, we may now turn our attention to the next period—the period from April 1917 to November 1918—which is the chief concern of our study in this chapter.

The Period from April 1917 to November 1918. This is the period from America's entrance into the War to the armistice, in which war-finance entered the problem of inflation. The necessity of raising huge sums of purchasing power for the government to conduct the War upset the 'normal' equation of exchange. As a matter of necessity for the Government, billions of bonds and certificates of indebtedness were issued regardless of the business conditions at the time of the issuance. Under such state of affairs we would expect to have 'abnormal' financial conditions in the country. It remains to be seen, however, to what extent inflation took place and to what extent war-finance was responsible for such an inflation. We shall approach this period these two points of view.

The Extent of Expansion in Money and Credit. In order to find out the extent of inflation, we have, first, of all, to find out the extent of expansion of money and credit. Total amount of money in circulation on first day of succeeding month during this period is given as follows;[15]

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(15) Treasury Report, 1921, p529.

Monthly Circulation of Money in United States, Apr. 1917-October 1918.

Date	Amount in circulation	Index Number
1917-		
April	4,736	100
May	4,731	99.89
June	4,763	100.57
July	4,852	102.45
August	4,799	101.33
September	4,820	101.77
October	4,924	103.97
November	5,085	107.37
December	5,120	108.11
1918-		
January	4,965	104.83
February	5,092	107.51
March	5,240	110.64
April	5,318	112.28
May	5,246	110.77
June	5.379	113.58
July	5,559	117.38
August	5,621	118.67
September	5,790	122.25
October	5,943	125.48

This table indicates that total amount of money in circulation increased steadily from April 1917 to October 1918 when an increase of 25.48 per cent was reached. However, we must bear in mind the fact that the amount in circulation in April, 1917 was by no means normal. If we compare the amount of $4,736 millions with 3,390 millions for the year 1913, we find that there was an increase of 39.7 per cent in money in circulation in April 1917. Similarly, the increase in October 1918 would be 75.3 per cent instead of 25.48 per cent as indicated in the above table. We learn from the data that the total amount of money in circulation in the United States was gradually expanding, but it remains to be seen whether this expansion of money was due to the War or to inflatory influence of the 'pre-war' period.

Let us now study the growth of deposits currency. In a similar study of the previous period, we used annual averages

of both time and demand deposits of federal reserve banks (not including deposits of member banks), national banks and state banks and trust companies, for official statistics did not separate time deposits from demand deposits until 1915. For this period, however, we shall exclude time deposits but include government deposits which were subject to withdrawal by the Government at any time. In the case of national banks and Federal reserve banks, we shall study the figures as they were given in their respective reporting periods (there were approximately six reporting periods in a year). In the case of state banks and trust compnaies, we shall have to be content with average figures for calendar years. So far as the writer knows, there are no monthly data nor quarterly data available for all state banks and trust companies in the United States. Our study of the expansion of deposit currency in this period is thus handicapped.

We learn from the following three tables that the expansion of bank deposits of National banks, Federal reserve banks and state banks and trust companies from June 1917 to June 1918 was about 10 per cent and to 1919 about 35 per cent. The increase of bank deposits at the end of October, 1918 must lie between 10 per cent and 35 per cent. The National banks' deposits increased from 100 in March 1917 to 134.11 per cent in November 1918. If we assume that the increase in deposits in state banks and trust companies corresponds with that of the national banks, then we may conclude that the total increase in bank deposits on November 1, 1918 was about 30 per cent. However, such an assumption has very little ground for justification. In the

Expansion of Deposit Currency in National Banks and Federal Reserve Banks.[16] (In 000,000)

Date	National Banks Demand deposits	Other deposits including Government deposits	Total	Federal Reserve Banks %	Federal Reserve banks Government deposits.
1917					
Mar.	6,368	922	7,290	100	99
May	6,628	955	7,623	104.59	76
June	6,560	1,006	7,566	103.79	300
Sept	6,916	973	7,889	108.21	71
Nov	7,208	2,201	9,409	129.07	220
Dec	7,498	1,455	8.953	122.81	108
1918					
Mar	7,282	1,484	8,766	120.24	104
May	7,310	1,844	9,154	125.46	166
June	7,161	1,714	8,875	121.74	84
Aug	7,466	1,137	8,603	118.01	104
Nov	7,803	1,974	9,777	134.11	207

Expansion of Deposit Currency in State Banks and Trust Companies.[17] (In 000,000)

Date	Individual deposits subject to check	Demand certificates of deposit	Deposits not classified	Total individual deposits	Percentages
STATE BANKS					
June, 1916	2,529	119	1,615	4,263	100
June, 1917	2,078	158	1,232	3,468	81.35
June, 1918	2,754	144	1,087	3,985	93.48
June, 1919	4,093	434	2,177	6,704	157.26
Trust Co. June, 1916	3,684	67	43	3,794	100
June, 1917	1,670	49	2,869	4,588	120.93
June, 1918	2,031	69	2,322	4,422	116.55
June, 1919	1,276	177	2,820	4,373	115.26

Expansion of Deposit Currency of National Federal Reserve and State Banks and Trust Companies during fiscal years, 1917-1919.[18] (In 000,000)

Year	National	Federal Reserve	State and Trust Co	Grand Total	Percentages
1917	7,566	158#	8,656	15,789	100
1918	8,875	126#	8,407	17,405	110.25
1919	10,155	137#	11,077	21,369	135.34

(16) National Banks' figures obtained from Fed. Reserve Bulletin, 1920, p. 726. Fed. Reserv banks' figures obtained from Federal reserve Bulletin, 1919, p. 774

(17) Figures obtained from Reports of Comptroller of Currency, 1916,p.901; 1917,p.879; 1918, p.826; 1919, p.816-818.

(18) # Figures obtained from previous two tables
Figures for Government deposits in Federal Reserve Banks obtained from averagin monthly figures for the year.

absence of any precise figure, we shall have be contented with the belief that the increase was somewhere between 10.25 per cent and 35.34.

Let us now examine the change in velocity for both money in circulation and bank deposits. We shall again refer to Prof. Irving Fisher's figures given in "Equation of exchange".

Increase in Velocity from March 1917 to November 1918.[19]

Year	Velocity for money in circulation (V)	Velocity for Bank deposits (V')	Percentage of V	Percentage of V'
1917-				
March	25.5	78.4	100	100
May	28.4	87.3	112.16	111.35
June	31.0	95.3	121.57	121.56
Sept	26.1	80.1	102.35	102.17
Nov	31.0	95.3	121.57	121.56
Dec	28.0	86.1	109.80	109.84
1918-				
March	26.9	84.1	105.49	107.27
May	30.3	94.2	118.82	120.15
June	31.1	97.1	121.96	123.88
Aug.	30.1	94.2	118.04	120.15
Nov.	31.9	99.6	125.09	127.04

This shows that the increase of V' was almost identical to that of V. V increased from 100 per cent in March 1917 to 125.09 per cent in November 1918; while V' increased from 100 per cent in March 1917 to 127.04 per cent in November 1918. Increases in both V and V' in June and November of 1917 were rather out of proportion to those of the other months. In both cases the increase was about 121.56 per cent which was little below that of November 1918, the maximum increase during the period. The extent of increase in percentages of V and V' was about the same as that of M and M'. In the case of M the increase was about 25.48 per cent; while that of V was about 25.09 per cent. In the case of M' the increase was between 10.25 per cent and 35. 34; while that of V' was about 27.04 per cent. It appears

(19) Irving Fisher, Equation of Exchange, American Economic Review, 1919, opposite of page 408.

That the increase of M' was approximately 27 per cent.

It seems to indicate that the expansion of MV+M'V' during the war period was about 25-27 per cent. Our task now is to find out to what extent the increase was offset by a similar increase in T (total production)

The Extent of Growth of Business and production. With regards to the growth of business and production, we may again refer to Professor E. E. Day's index of physical production of the United States. Figures for calendar years 1917 and 1918 appear as follows:[20]

Growth of Physical Production of United States, 1917, 1918.

Year	Index number	percentages using 1917 indexnnumber as 100.
1917	119.8	100
1918	119.0	99.33
(1919)	(112.5)	

The above table shows that there was no growth in production in 1918. In fact production reached its highest peak in United States in 1917. ~~Since~~ then it gradually declined. (~~figures available up to 1921~~). The year 1918 showed a slight decline of .67 per cent. Thus, it appears that the growth of MV+M'V' was not due to a corresponding increase in production. In fact the slight decrease in production might have, to a very limited extent, restricted the expansion of MV+M'V'. We may conclude that during the period of hostility there was to a considerable extent inflation.

Thus far we have learnt that there was about 25 per cent of inflation during this period. Since the expansion of MV+M'V' was not offset by a similar growth of production, there should

(20) E. E. Day, The Review of Economic Statistics, 1921, p. 19.

have been a corrwsponding rise in price level. The following table shows us the relative increase of price level from March 1917 to November 1918.

Rise in Price Level from March 1917 to November 1918.[21]

Rate	Index Number	Percentage Using the Index Number for March 1917 as 100.
1917-		
March	162	100
April	173	106.79
May	183	112.96
June	185	114.20
July	188	116.05
August	189	116.67
September	187	115.43
October	183	112.96
November	183	112.96
December	182	112.35
1918-		
January	184	113.58
February	186	114.81
March	187	115.43
April	190	117.28
May	190	117.28
June	191	119.90
July	196	120.99
August	200	123.45
September	204	125.92
October	202	124.69
November	203	125.31

It is surprising to find that the rise of price level during the period was almost identical to the increase in MV+M'V'. The rise in price level from March 1917 to November 1918 was 25.31 per cent, while that of MV+M'V' was approximately 25-27 per cent. The increase in M was 25.48 which was only a fraction of a per cent more than that of price level.

In a similar study of the previous period, we learnt that the price level may be increased by an increase in demand for commodities and that such an increase in price level will lead to an expansion of money and credit. It remains to be seen whether

(21) Figures obtained from Wholesale Price Series, Monthly Bulletin Bureau of Labor Statistics, December, 1922, pp30-31.

there was an increase in demand for commodities from foreign countries during this period. A study of imports and exports data will undoubtedly lighten us on this question.

Exports of United States from March 1917 to November 1918.[22]

Date	Value in COO,CCO	In %	Index number of price level	Percentage decrease in exports adjusted according to March 1917 price level.
1917-				
March	553.9	100	100	100
April	529.9	95.67	106.79	89.59
May	550.0	99.22	112.96	87.84
June	575.2	103.84	114.20	90.93
July	373.0	67.32	116.05	58.01
Aug	488.6	88.21	116.67	75.59
Sept	454.6	82.05	115.43	71.08
Oct	542.1	97.87	112.96	86.64
Nov	487.3	87.98	112.96	77.87
Dec	600.1	108.32	112.35	96.41
1918-				
Jan	504.8	91.13	113.58	80.23
Feb	411.3	74.25	114.81	64.77
March	522.9	96.21	115.43	83.35
Apr	500.4	90.34	117.28	77.03
May	550.9	99.46	117.28	84.81
June	483.8	87.34	117.90	74.08
July	507.4	91.60	120.99	75.71
Aug	527.0	95.14	123.45	77.07
Sept	550.4	99.38	125.92	78.92
Oct	501.8	90.59	124.69	72.65
Nov	522.2	94.28	125.31	75.24

The export figures varied so much from month to month that it is highly desirable to secure the arithmetic average and use it as the basis of comparison. The average for the last column is 78.89. This indicates that during the war period the average monthly export decreased about 21 per cent. However this should not be interpreted as an evidence of decrease in demand for raw materials and commodities from belligerent countries. It means that there was an increase in demand in this country. The limited amount of supply of raw materials and commodities

(22) Value figures obtained from Monthly Summary of Commerce and Finance, Bureau of Foreign and Domestic Commerce, p4, 1917, 1918, and1919.

in the United States had to meet her internal need first. It is impracticable to estimate in figures the exact increase for internal needs. However, a study of the imports during this period may give evidence to the increasing internal demand.

Imports of United States from March 1917 to November 1918.[23]

Date	Value in 000,000	In %	Index number of price level	% decrease in exports adjusted according to March 1917 price level.
1917-				
March	270.2	100	100	100
April	253.9	93.97	106.79	87.93
May	280.7	103.89	112.96	91.97
June	306.6	113.43	114.20	99.32
July	225.9	83.60	116.05	72.04
Aug	267.8	99.11	116.67	84.95
Sept	236.2	87.41	115.43	75.73
Oct	221.2	81.86	112.96	72.46
Nov	220.5	81.60	112.96	72.23
Dec	227.9	84.34	112.35	75.06
1918-				
Jan	233.9	86.56	113.58	76.21
Feb	207.7	76.87	114.81	66.95
March	242.1	89.60	115.43	77.62
April	278.9	103.22	117.28	88.01
May	322.8	123.14	117.28	104.99
June	260.3	96.33	117.90	81.70
July	241.8	89.49	120.99	73.96
Aug	273.0	101.03	123.45	81.84
Sept	261.7	96.85	125.92	76.91
Oct	246.7	91.30	124.69	73.22
Nov	251.0	92.89	125.31	74.13
Average				80.36

The average of percentage decrease in imports during thisperiod was less than 20 per cent. Comparing this with the average decrease in exports, it appears that the decrease in imports was about 5 per cent less than that of exports. However, we must bear in mind the fact that during this period trade between Central Powers and the United States stopped entirely. The decreases in both imports and exports were chiefly due to the loss of trade with Germany and her allies. In 1913 Germany,

(23) Value figures obtained from monthly Summary of Commerce and Finance, Bureau of Foreign and Domestic Commerce, p4, 1917 1918 and1919.

Austria-Hungary and Turkey in Europe took about 13.6 per cent of America's exports and, in turn, furnished the United States about 11.7 per cent[24] of her total imports. Trade between the Central powers and United States fell off in 1915 and 1916. Nevertheless, the loss of trade with them had considerable bearing upon the decrease in both exports and imports during the war period.

Too much weight should not be placed upon the imports and exports figures during this period. 'Abnormal' conditions prevented the 'normal' flow of commerce. Exportation of food and raw materials was hindered by governmental restriction, while importation of luxuries was discouraged. Under those conditions the data lost its usual significance. It is safe, however, to conceive the idea that, during the war period, more materials and commodities were kept for home consumption. Thus, there was a greater supply of materials and commodities to meet the domestic demand, It is beyond doubt that the demand for raw materials and other kinds of commodities increased greatly as a result of the declaration of war. The question is:whether the increase in supply in the domestic market was sufficient to offset the increase in demand. If not, would the price level be raised?

With regards to the second question we have no doubt that the price level would rise as it did during the previous period. It is almost impossible to answer the first question, since there is no way to measure the increase in domestic demand of materials and commodities. A detailed comparision of the rise in price level and increase in money in circulation seems to indicate that the expansion of money in circulation followed the rise in

price level. The increase in money in circulation in the first six months was between 1 to 2 per cent, while that in price level during the same spell of time was from 6.79 in April 1917 to 15.43 percent in September of the same year. From September 1917 to March 1918 the increase in money in circulation was from 1.77 per cent to 10.64 per cent, while price level showed no increase in money whatsoever. From March 1918 to the end of October 1918 the increase in money in circulation was from 10.64 per cent to 25.48 per cent, while that of price level was from 15.43 per cent to 25.31 per cent. It appears that the price level increased during the first six months out of proportion to the the amount of money in circulation, because the increase in domestic demand for materials and commodities just after the declaration of was drove the price level upward. Then at the end of the six months period, the equation of exchange was so offset that the total amount of money in circulation began to expand in response to the sudden increase in price level until the end of this six months the increase in money in circulation almost caught up with the rise of price level. During the remaining eight months the growth of money in circulation almost corresponded with the rise of price level. From this analysis we may answer the first question by saying that the increase in domestic demand for materials and commodities at the beginning of the war period seemed to be greater than the increase in supply as a result of decrease in exports.

Relationship betwen War finance and inflation. We have so far completed our inquiry as to what extent inflation took place during the war period. Our next inquiry is:what is the

relationship between war finance and inflation. We have learnt from the previous chapters that war borrowing and taxation were the two chief methods used by United States to enable her to conduct the War. We shall approach the question by studying the connection between inflation and each one of the two methods separately.

Let us examine the relationship between war borrowing and inflation first. There are two kinds of war borrowing: one is by mulfiplying the volume of currency in circulation whereby the government may forcibly borrow or deprive of part of the purchasing power which holders of the currency possess before the multiplication; the other way is to issue bonds. Borrowing by issuance of fiat currency will evidently lead to inflation, since it increases M regardless of whether there is a corresponding increase in T. Although the quantity of money in circulation increased considerably during the war, there was no such kind of borrowing in United States. There was, however, considerable borrowing by issuing bonds and certificates of indebtedness. Our task then is to find out how can bonds and certificates of indebtedness cause infation.

According to its definition inflation may be caused by an increase either in M or V or M' or P without a corresponding growth in T. Thus, if we can prove that issuance of bonds and certificates of indebtedness will inevitably lead to an increase in one of the items, we have proved that borrowing by bonds and certificates of indebtedness will cause inflation. Let us study the different sources from which borrowing may be derived and find out whether there is any possibility

of increasing M, M' etc. in any one of those sources. According to Professor E. R. A. Seligman,[25] domestic loans may be derived from five sources:

(a). From transfer of funds from stock exchange to the government.

(b). From the surplus of a current production.

(c). From a change from foreign investment into domestic investment.

(d). From anticipated savings.

(e). From borrwing at the bank.

Of those five sources only the last one will cause an increase in M'. The rest does not seem to have any bearing on the growth of either M. M' or P.

There is another way which will lead to inflation. It should be noted that regardless of how bonds and certificates of indebtedness are purchased, holders of bonds always consider them as investments and may use them as collateral to secure loans from banks. Thus by issuing bonds and certificates of indebtedness, the Government has created billions of dollars of 'potential possibility' for credit expansion which will ultimately lead to increases in bank deposit and currency. It seems that so long as banks accept loans with government bonds as collateral, inflation is a necessary evil of war borrowing. We have found two possibilities of inflation from government bonds, our next step is to find out to what extent these two possibilities were actually responsible for the inflation in the

(25) E. R. A. Seligman, Loans v. Taxes in War Finance, Annals of American Academy of Political and Social Science, Jan. 1918, -p. 74

a study of the

the United States during this period. ~~Axxdy in th~~ relative growth of discounts in Federal Reserve banks and loans and discounts in national, state banks and trust companies will undoubtedly enlighten us.

Increase in Discounts and United States Securities in the Twelve Federal Reserve Banks.[26] (in 000,000).

Date	Discounts secured by War Paper $	Other Discounts $	Total $	In %	U. S. Securities $
1914 (average)		17.3	17.3	100	.205
1916 (average)		33.9	33.9	196	51.3
1917-					
April 27		35.0	3500	205	117.8
May 25		47.5	47.5	274	117.6
June 29	25.5	171.7	197.2	1139	70.7
July 27	12.6	125.8	128.4	742	76.9
Aug. 31	11.8	135.4	147.3	851	77.9
Sept. 28	65.9	167.6	233.5	1349	95.0
Oct. 26	209.2	187.8	397.0	2294	110.0
Nov. 30	405.6	350.7	756,4	4372	89.1
Dec. 28	283.4	397.3	680.7	3929	107.2
1918-					
Jan 25	312.5	315.1	627.6	3628	123.2
Feb 21	263.9	245.6	509.5	2945	222.6
Mar 28	301.4	281.2	583 2	3371	310,7
Apr 26	642.4	259.3	901.7	5212	78.8
May 31	562 4	334.3	897.6	5186	146.9
June 28	434.5	34436	869.1	5081	259.0
July 26	673.2	628.9	1,302.1	7526	57.0
Aug. 30	896.2	531.0	1,428.1	8255	56.1
Sept 27	1,221.5	491.9	1,713,4	9904	78.0
Oct 25	1,092.4	453.7	1,456.1	8937	350.3
Nov 29	1,412,5	402.6	1,815.1	10492	121.8

According to this table the increase in discounts from 1914 to April,1917 in 12 Federal Reserve banks was only a little more than 100 per cent, and that from April 1917 to November 1918 was 10,392 per cent. In other words, the increase in discounts in November 1918 was more than 100 times of the monthly average amount of discounts in 1914, and it was more than 50 times of the average amount in 1916. The growth is so enormous that we can hardly fully appreciate

26) Data obtained from Federal Reserve Bulletin, 1919,p.771

its significance even it is expressed in percentage figures. The growth in discounts secured by war papers is even more astonishing Up until May 25, 1917, there was no discounts secured by war papers, but by November 29, 1918, the total amount in the 12 Federal Reserve banks was 1,412.5 millions, about 78 per cent of the total amount of discounts made by the federal reserve banks during that month. The growth of U. S. securities held by the federal reserve banks was from two hundred and five thousand in 1914 to 121.8 millions in November 29, 1918. It may be argued that these figures are misleading since the Federal Reserve System was not in full operation until the war period. To be sure there is some truth in this argument, but when we compare the growth between 1914 and April 1917 and that between April 1917 and November 1918, we must admit that the growth in the latter period was far out of all proportion. The growth of 1,412.5 millions of dolars of discounts secured by war paper is a direct result of issuance of war borrowings. Without war paper as collateral, the majority of these loans could not have been granted by the banks. It is interesting to note that the war period lasted only about nineteen months, What would have been the total amount of discounts and loans secured by war paper, if war had continued for another year or so?

However, the expansion of discounts in Federal Reserve banks is only a part of the total expansion of bank credit in the country. The following table shows the increase in loans and discounts and government securities owned in national banks:

Increase in Loans and Discounts and Government Securities owned in National ~~Banks~~ Banks.(X in 000,000) [27]

Date	Loan and Discount	Government Securities	% increase in loans and discounts.
1914-			
Dec. 31	6,353	795	100
1917-			
Mar. 5	8,720	715	137.04
May 1	8,760	~~x,xxx~~ 768	137.67
June 20	8,828	~~x,xxx~~ 1,076	138.74
Sept. 11	9,065	1,159	142.46
Nov. 20	9,551	2,354	150.10
Dec. 31	9,406	1,625	147.79
1918-			
Mar. 4	9,153	2.127	143.82
May 10	9,272	2,663	145.82
June 29	9633	2129	151.39
Aug. 31	9,508	2,466	149.39
Nov. 1	10,114	3,166	158.95

This table shows us two things: In the first place, it shows the gradual growth of discounts and loans. The absolute increase was about 1,394 millions, while the percentage increase was about 16 per cent (divide 158.95% by 137.04 %) since March 5, 1917. We do not know to what extent the growth was due to increase in discounts and loans secured by war paper. Our data does not give us the necessary information. We shall have to be content with the belief that a part of this growth was due to increases in loans secured by war paper. In the second place, it shows that there was a rapid growth in amount of Government securities held by the national banks. The absolute growth was about 2,451 millions of dollars and about 342 in percentage since March 5, 1917. There are two ways by which banks may invest in Government securities. One is by allotment from the Government, and the other is by ~~xxxxxxxx~~ securing them from customers as collateral for loans. It may be recalled that the method used by the

(27) Data obtained from Federal Reserve Bulletin, 1919,p.782

Treasury to dispose of a loan was to allot a certain amount to each member bank of the Federal Reserve System. The member bank may either sell the bonds to customers or retain them as its own investment. In the former case, the bank may either receive payment from the customer and credit the amount to the government deposit acount, if it be a depositary bank, or grant a loan to the customer to enable the customer to pay for the bonds. In case the bank retained part of the bonds for its own investment, the bank simply credits the Government deposit account with the amount and keeps the bonds as assets of the banks. The increase in government deposit account which appears on the liability side will be offset by a corresponding increase in investment which will appear on the resource side of the bank statement. The other way for a bank to get possession of war paper is to grant a loan to a customer to be secured by government securities. In both cases there is expansion of bank credit, for in our study of inflation we consider both governmentdeposits and individual deposits as deposit currency which we call M' and any increase in loans and discounts will lead to increase in deposits. The following table proves that majority of the borrowers from banks keep their borrowing in banks as deposits:[28]

Classification of Loans made by 600 National Banks.

	Loans to individuals who keep deposits	Loans to individuals who keep no deposits.
Dec. 31 1918	4,682,175,062.59	1,240,889,159,24
Dec. 31, 1917	4,061,297,461,00	1,327,364,675.00

Thus the increase of 2,451 millions of dollars held in national banks indicates that there was expansion of M'.

(28) Treasury Report, 1919, p.964-966.

Let us now examine the data for state, savings and private baks and trust companies.

The increase in Loans and Bonds Held in State Savings and Private Banks and Trust Companies.[29] (Fiscal years 1916-1919)

Items:	1916	1917	1918	1919
Loans	10 164	11,674	12,426	14,061
Bonds	4,443	4,990	5,784	7,177

This table shows that there was an increase of 2,587 millions of loans since 1917 and 3,897 since June 1916. The amount of bonds held increased from 4,443 millions in 1916 to 7,177 in 1919, an increase of 2,734 millions of dollars of bonds. We do not know however, the exact increase in loans secured by war papers and in Government securities. Furthermore, we do not know the exact increase from April 1917 to November 1918. Such data is not available.

To sum up, we learn that there was an increase of 1,412.5 millions of dollars of discounts secured by war paper, 121.6 millions of dollars of U. S. securities in the Federal Reserve banks at the end of the war period. In the national banks, we find that there was an growth of 2,451 millions of dollars of securities held and an increase of 1,394 millions of loans and discounts part of which consists of ~~papers~~ obligations secured by Government securities In the case of state, savings and private banks and trust companies, there was an increase of 2,587 millions of loans and 4,443 millions of bonds. Of these increases about four billions (1,412.5 + 121.6 + 2,451) were definitely proved as due to issuing of war paper. To what extent the rest of the increases (8,424,000,000) was due to issuance of war paper we have been unable to find out. From whatever data we have, we know that the increase of loans and discounts and war paper

(29) Treasury Report, 1919, p. 1104

as a result of war borrowing was between 4 billion to 12.4 billions of dollars. Such an enormous increase in both loans and discounts and war paper held must have important bearing upon the expansion of bank credit.

Our next inquiry is to what extent subscribers of bonds and certificates paid the subscription by borrowing from banks. We learned from a previous citation that there were five sources from which domestic loans may be derived and that borrowing from banks is one of them. Among the other four sources, transfer of funds from stock exchange to the Government and a change from foreign investment into domestic investment are methods of transferring past savings into war loans. The other two are from the surplus of a current production and from anticipated savings. If we can find out to what extent these four sources were used, we can easily find out to what extent borrowing from banks was used. Our method would be to substract the total amount derived from the other four sources, from the total amount of expenditures either of each respective year or of the total war period as a whole. A. C. Miller, former governor of the Federal Reserve Board,[30] estimated that the total income of United States for the year 1917 was 50 billions of dollars, that the annual savings was estimated between 3 to 5 billions and that the total savings or investment power of the country, taking the actual and potential funds together, might amount to as much as fifteen billions of dollars or more for the year 1917. The fifteen billions of total savings in 1917 could not all be used for 'financing' the war. Part of that amount must have been tied up in some investments

(30) Annals of American Political and Social Science, Jan.1918, pp.118- 120.

which were essential for further production. That part could not be used for any other purpose unless production was to be curtailed. Assuming, however for the sake of argument, that this amount of 15 billions of dolars could all be used for war-financing purposes and assuming that the Government could obtain this entire amount, and assuming that the annual saving was 5 billions instead of 3 billions, then the total amount of savings (including past savings and one year future savings) could not have been more than 25 billions of dollars (15 billions, total savings in the country in 1917, plus five billions for the fiscal year 1918 and five billions for the fiscal year 1919). This means that no matter whether the Government raised funds from taxation or from loans, it could only get a total sum of 25 billions of dollars from savings. A study of the net receipts from public debts during the fiscal years 1917, 1918, and 1919, shows that the net total of loans borrowed during the war period was about 24,258 millions of dollars.

Net Receipts from Public Debts, fiscal years, 1917-1919.[31]

1917		
Total Receipts	2,428,017,799.61	
Redemptions	677,544,725,25	
Net.		1,750,473,047.31
1818		
Total Receipts	16,974,889,209.61	
Redemptions	7,706,879,075.13	9,268,010,134.48
1919		
Total Receipts	29,075,976,515.75	
Redemptions	15,837,566,009.13	
		13, 238,410,506.62
Net Total		24,256,897,688.41

This amount was about equal to that of the total savings of the country during this period. We can readily see that there was no

(31) Data obtained from Treasury Reports for fiscal years 1917-191

savings left for purchasing short-term borrowing and taxation. The total amount received from taxation was about 9,939 millions of dollars (1,118 for 1917 plus 4,174 for 1918 and 4,647 for 1919). The total amount of short-term borrowing which was redeemed within each fiscal year was about 24 billions of dollars. From this brief analysis, we can readily see that the total amount of savings during the war period was not sufficient to enable the Government to conduct the War. The difference between the need of the Government and the total savings of the people must be either raised from foreign countries or from internal borrowing. In the case of United States, the difference must have been met from borrowing from banks entirely, since she did not borrow any money from abroad during this period.

If we consider 1 billion of dollars from taxation as the 'normal' amount of revenue for the country, then the total excessive amount of taxation during this period was about 7 billions of dollars (Deduct 3 billions from 9,939 billion which were the total sum raised from taxation during the period). This 'extra' sum from taxation must be paid out of borrowing from banks, since all savings of the country were likewise used for raising revenue for the country. As a matter of fact, people very seldom borrow money from banks for the purpose of paying taxes. Banks, on the other hand, would not grant such kind of loan, unless the personal credit is exceptionally good. The actual practice was to pay taxes out of income and borrow from banks to pay for bonds, if necessary. Banks were more willing to grant loans secured by Government bonds, because they considered bonds as certificates of ownership. In case the customer failing to repay the loan, the bank could avoid a serious loss by selling the bonds. In fact Federal

Reserve Board encouraged such kind of borrowing by anthorizing the Federal Reserve Banks to give preference to discounting papers secured by Government securities for members. Thus, the amount of 7 billions of dollars must have been borrowed from banks to purchase government securities rather than to pay taxes.

We must bear in mind that the amount of 7 billions of dollars was by no meas the precise difference between the Government need and the total savings of the country. The actual difference must have been much greater inasmuch as none of our assumptions were true. In the first place part of the 15 billions of dollars of savings in 1917 must be invested in some essential industries in order to secure greater production. In the second place, not all savings were available for government use. Some people prefer to invest their savings in some other line from which they can secure greater return for their savings. The Government could not very well compel the people to invest their entire savings in Government securities

We should also note that as the War went on the Government had to depend more and more upon expansion of bank credit to raise funds. The total amount of ~~real~~ real savings in the country remained practically stationary while the need of the Government grew rapidly. Under such circumstances borrowing from banks and expansion of bank credit seemed inevitable. The government issued bonds and certificates of indebtedness according to the need of the government regardless of the amount of savings in the country at the time of issuance of such securities. As we have mentioned in the beginning of this chapter, inflation is a necessary evil of war as well war finance. It is intimately related with both methods of war finance, borrowing and taxation. No matter whether a government wants inflation

or not and no matter whether taxation or borrowing is used as the chief method to raise funds, the moment the need of the Government for a war purpose is in excess of the savings of the country, inflation will take place. Imagine what would be the result if the Government prohibits borrowing from banks both for payment of taxation and purchase of government securities. In that case, very few people could buy the securities and very few could affort to pay taxes after most part of the total savings of the country had been used. The Government could never raise enough to conduct the war successfully. To avoid inflation entirely during a war would be a suicidal policy.

In spite of its evils, therefore, inflation should not be condemned altogether. Proper inflation is less disastrous that utter ruin. Speaking of inflation, we do not mean inflation by means of fiat money Inflation by means of fiat money can be avoided and should be avoided. Of course, this statement is subject to certain qualification. There may be a time when inflation by fiat money is absolutely necessary. This would be the time when a government could no longer get enough funds from inflation by means of expansion of bank credit. We must bear in mind that in funancing a war, the need of the government must be met regardless of the cost. In that case and only in that case is inflation by means of fiat money justified.

In our study of the relationship between inflation and war finance, we have used two methods: one is by means of finding out the actual increase in bank deposits and the other is by means of finding the difference between total savings of the country and the the need of the govenment. We find by means of the first method

that the expansion of bank credit during the war period was about $9,060 millions of dollars in Federal Reserve national and State banks and trust companies (the increase in federal reserve banks being 1,412.5 plus 3,751 millions of increase of the national banks and trust companies.) Of this total, part of the increase was directly due to war borrowing. By means of the second method we find that the difference between savings of the country and the need of the government during the war period could not have been less than $7,000 millions of dollars of the expansion of bank credit were due to war finance. Although we appraached the same question from two different ways, the result seems to be the same, i. e., the United States government depended to the extent of seven billions of dollars or so upon inflation in order to conduct the War. This conclusion is significant inasmuch as the government only raised about nine billions of dollars of taxation. As we have already learnted, as a war goes on, the government has to depend more and more upon inflation as a means of raising revenue, or the difference between the total savings and the need of the government becomes greater and greater. If a government had to depend as much upon inflation as upon taxation in financing a 'twenty -months' war, how much would she have to depend upon inflation in financing a war of three or four years.? If is evident, therefore, that inflation is not only unavoidable in war finance but it also plays a leading role in it--a role whose significance is not very well appreciated.

It should be noted that inflation does not end with the war. In the study of the next period, we shall soon find that inflation continued after the end of the war. To sum up for this period, we may conclude as follows:

(1) That there was about 25-27 per cent of further inflation in this period.

(2) That inflation in this period was a continued process that of the previous period.

(3) That the United States Government had to depend to the extent of seven billions of dollars upon inflation in order to finance the War.

(4) That inflation by means of expansion of bank credit is necessary means of war finance.

The Period from 1918 to 1921. This is the post war period in which inflation also took place. Inflation, once started by a war, does not end with it. If fact, we shall soon find that inflation continues in a greater scale. Although in a study of this paper, we are not particularly concerned with the post war inflation it is highly desirable to make a study of this period in order to show that inflation may be caused by several factor. It may be recalled that during the pre-war period inflation was chiefly caused by a rise of price-level which in turn was caused by an increase in demand for materials and commodities and that during the war period inflation was accelerated by the expansion of money and credit, which was made necessary by the growing need of the Govenment to finance the War. In this period since the need of the Government was less urgent and since the demand for materials and commodities was somewhat less, we would expect to have no further inflation. But the facts will soon tell us this was not the case. What then caused inflation during this period?

The Extent of Expansion of Money and Credit. In order to answer this question, we shall first of all analyze the situation and find out

to what extent inflation took place. With regards to the expansion of money in circulation, the following table shows the amount and percentage increases since fiscal year 1919.

Growth of Money in Circulation from Fiscal Years 1919-1921.[32]

Years	Amount of Increase (in 000,000)	Percentages.
1919	5,766	100
1920	6,087	105.06
1921	5776	100.17

From this table we see that money in circulation in 1920, increased 5.56 per cent in comparison with that in 1921, which increased about .17 per cent being negligible. The absolute amount of increase in 1920 was about 321 millions of dollars, while that in 1921 was about 10 million. Let us now turn our attention to deposit currency of national banks, states banks and trust companies. The following table shows the increase in demand deposit currency in national and state banks and trust companies in the United States from fiscal years 1919 to 1920:[33]

Year	Amount	Percentages.
1918	17,408	
1919	21,369	100
1920	22 374	104

The table shows that there was a relative increase of 4.7 per cent and an absolute increase of 1,005 millions of dollars. If, however, we use 1918 figure as the base, the increase would be much larger. The relative growth in 1920 would be 28 per cent.

The Growth of Business and The rise of Price Level. The the following table shows us the relative rise or decline of business and price level:[33]

Year	Production	Index No.	Price Level	
1918	119.0	100	195	100
1919	112.0	94.6	223	115
1920	117.0	98	226.5	116

In our study of this pe iod, we have only dealt very briefly with some of the factors of inflation. However brief our study may have been for this period, it is sufficient to indicate that there were further inflation following the armistice. What then caused inflation in this period? Briefly speaking, we may say that there were two chief causes of inflation for this period: In the first place, the need of the government did not decline with signing of armistice. The need of the government did not materially decrease in fiscal years 1919 1920 and 1921. As we have learned from a similar study of the previous period, so long as the need of the government is in excess of the total savings of the country, inflation will take place. In the second place the existence of large amount of bonds and certficates in the financial market tends to increase borrowings from banks, and an increase in borrowing from banks in turn will lead to inflation.

Summary. In this chapter, we have endeavored to prove three things: First, we tried to prove that 'abnormal' expansion of M'.V', is not always the cause nor the effect of a rise of price level Sometimes, 'abnormal' expansion of MV+M'V' takes place first, sometime the price level moves first. In either case, both will be affected and cause inflation. In the case of pre-war inflation, we are inclined to believe that rise of price level preceded the expansion of money and credit. In the case of inflation curing the war period, they almost expand simultaneously, although a detalied study of this period shows that price level increased during the first six month period and expansion of money and bank credit followed. In the case of post-war inflation, we are inclined to believe that expansion of money and credit took place and the rise of price level followed as a necessary adjustment for the equation of exchange. Our study of the third period was exceedingly brief inasmuch as we are not concerned

in this paper with post war conditions and a detailed study of it would be out of place here. Secondly, we tried to prove that inflation is an important means of war finance. From our study the U. S. Government depended almost as much upon inflation as upon taxation. Furthermore, inflation enabled the floating of loans. Without this kind of inflation, the issuance of Liberty Loans could not have been as successful as it was. In fact, without inflation the usefulness of taxation and borrowing as means of war finance are very limited. Thirdly and lastly, we tried to indicate that inflation is unavoidable in a modern war. We learned that the extent of inflation is determined by the difference between the total savings of the country and the need of the government. Inasmuch as the need of the government is almost limitless and as the total savings of the country at a given time are very limited, inflation must take place sonner or later.

CHAPTER V

CONCLUSION

In this paper our chief inquiry is how the United States Government meet the costs of the War? Our problem is distinctly a fiscal one and has no bearing upon the question whether one method is better than the other. Our method of approach is to analyze the facts of the problem. In the previous four chapters we tried to classify the facts and make a study of each of the classes. Our analysis of the facts leads us to certain conclusions which may reflect upon the problem itself. Our conclusions are as follows:

In the first place, the money costs do not end with the war. The great increase in expenditures of the Government due to war upsets the finance of the government, and it takes years before the finance can be restored to its normalcy. The money costs end when such normalcy is established. Consequently, the task of financing the war will not be completed until the money costs end.

In the second place, borrowing as a temporary means of financing a war is absolutely essential. The need of a government during war period is so urgent that the treasury

must secure a large sum of available fund within a short spell of time. The question of expediency is the most important one in war-finance. A delay of very few days in securing the needed funds may result in defeat and national disaster. No matter what method is to be used, it must have the advantage of expediency.

Certificate borrowing in the United States was used to serve for this purpose. With the cooperation of the 12 Federal reserve banks, the Treasury was able to secure what it wanted at any time for practically an unlimited amount. The service rendered by the 12 Federal reserve banks, cannot be very well overemphasized. Without them certificate borrowing could not be used to advantage. They served as a missing link between the Government on one hand and the financial world on the other. They mobilized the financial resources of the country and placed them at the service of the Federal government.

The usefulness of certificate borrowing cannot be disputed. No matter what may be the effects of such borrowing, its adoption as a means of financing the War is amply justified.

In the third place, long-term borrowing is not avoidable in a modern war. The amount of receipts from taxation at any given time is always very limited, while the costs of a war grows out of all proportion to yields of taxation. Under such circumstances, the government has only two alternatives. Either it borrows from the people or abroad or forcibly deprives the people of their purchasing power by

issuing fiat money. The latter has been proved beyond doubt as a very disastrous method for any country to adopt. Thus, a government is forced to choose one of the two evils, if borrowing may be considered as such. Between the two, borfowing is undoubtedly a 'less' evil.

During the War, the United States Government borrowed about 20 billions of dollars (including the first, second, third, and fourth Liberty loans and the Victory loans). We do not question the ill affects of loans nor do we argue that the United States Government could have borrowed less. But the question we have in mind is whether the Government could have avoided borrowing entirely. We firmly believe that to avoid borrowing entirely was impossible. Our belief is based upon the idea that the Government could not have raised the entire 20 billions of dollars from any other source but issuance of fiat money. The total annual ~~income~~ savings of the United States was estimated at between 3 to 5 billion of dollars. The average amount raised from taxation during the war period was about 4 billions of dollars. How could the people pay an additional sum of 20 bilions of dollars during three years? We wish again to emphasize the point that we are not arguing that the United States Government adopted the right proportion between taxes and loans. We believe an additional of about 3 billions of dollars might have been raised from taxzation during the three years, but we cannot be led to believe that the entire 20 billions could have beeen raised from taxation.

In the fourth place, taxation should be made as heavy as the people can bear. A modern war is fought between

people of the belligerent countreis not between the rulers of the nations concerned. Consequently the burden of the war ought to be borne by the people as a whole. However, there is a limit beyond which further increase in rate of taxation will not increase the receipt. Human nature is such that average person tries to avoid taxation if possible. If taxation becomes so heavy that it is beyond the ability for the people to pay, then it is doomed to fail.

The income tax and the excess-profits rates of the United States were so heavy that they encouraged the people to evade them. The outstanding of billions of Liberty bond in the United States furnished the 'tax-evader' amply opportunity of doing it. Most of the bonds were tax-exempt, and by investing their savings in them, people could avoid heavy income taxes. This was what happended. The Government was obliged to reduce the income tax rates after the signing of armistice. The heavy excess-profits tax encouraged corporations to become overcapitalized. This necessary evil led the Government to abandon it altogether by the revenue act of 1922.

Our point is this: taxation should be heavy in times of urgent need of the government but it should not be too heavy so that the people will either evade it or be unable to pay for it. No matter how perfect a law may be, there is always some possibility of evading it, if people are determined to do it.

In the fifth place, inflation, in a modern war, is

unavoidable. Inflation here is used in the sense of abnormal increase in deposit currency without a corresponding increase in total production and trade. Inflation will take place as soon as the needs of the Government exceeds the total savings of the country at any given time. Thus, it is only a matter of time when there will be an excess of the need over savings. Such excess of the need of the government can either be met by borrowing on the part of the people from banks in order to purchase bonds or other forms of governmental securities or by borrowing from foreign countries. Borrowing from foreign countries is always subject to certain limitations and may not be possible at all in certain cases. Borrowing on the part of the people from banks will inevitably lead to inflation.

Lastly, inflation makes issuing of large amount of loans at one time possible. It is inconceivable that billions of dollars of savings are available within a short time. If banks are forbidden to make advancement to individuals for the purpose of purchasing bonds or securities of the government, then it would not be possible to sell a large sum at any time.

During the War, the Federal Reserve banks not only failed to prohibit borrowing for the purpose of investing in government securities but actually encouraged the practice. The slogan of the Third Liberty Loan campaign was to "Borrow and to buy". # The Liberty Londs, therefore, owed part of their success to inflation.

(#) E. L. Bogart, War Costs and Their Financing, p. 210

We are not, however, advocating for inflation. We know some of its ill effects. But during a war, the fiscal need is far more important than any other consideration. If inflation is the only way of raising revenue in certain cases, then its adoption as a means of financing the war is justified.

Bibliography

Public Documents:

Treasury Reports, 1916, 1917, 1918, 1919, 1920, 1921, 1922, 1923, and 1924.

Federal Reserve Bulletin, 1918, 1919 and 1920

Reports of the Comptroller of Currency, 1917, 1918, 1919 1920 and 1921

U. S. Monthly Bureau of Labor Statistics, Wholesale Price Series, 1923

Books:

E. L. Bogart, War Costs and Their Financing, D. Appleton and Company, New York, 1921.

J. H. Hollander, War Borrowing: A study of Treasury Certificates of United States.

J. S. Nicholson,

Inflation, P. S. King & Son, London.

War Finance, P. S. King & Son, London.

A. C. Pigou,

Economy & Finance of the War.

Political Economy of War.

Clark, Hamilton, Moulton,

Readings in the Economics and War. The University of Chicago Press, 1918.

E. R. A. Seligman,

Currency Inflation and Public Debts, Columbia University series.

How to Finance the War, Columbia University series, 1918

Economic Inter pretation of the War.

Laughlin, J. L.

Credit of the Nations, A study of the European War.

Noyes, A. D.

Financial Chapter of the War.

Periodical articles:

J. H. Hollander, Inflation, Annals of American Polititat and Social Science, 89: 213-7 May, 1920

F. W. Taussig, The Financial Situation: A general Survey, Annals of American Academy of Political and Social Science, January, 1918, p.1-16

Henry C. Adams, Borrowing as a phase of War Financing, Annals, January, 1918, p.27.

E. R. A. Seligman, Loans v. Taxes in War Finance, Annals January, 1918,p52

A. D. Noyes, the argument against inflation from Government loans, Annals, January, 1918, p. 137

J. Herbert Case, Preparation for War and the Liberty Loan, Annals, 99: 1922. p.128

A. H. Hansen, the Sequence in War Prosperity and Inflation, Annals, May, 1920, Volume 89, p.234.

George E. Roberts, The Cause and Process of Inflation, Annals, May 1920, p. 247.

Gustav Cassel, Some leading Prospositions for an internation Discussion of the World's Monetary Problem, Annals January, 1918, p.259

H. G. Moulton, War Finance and the Price Level, the Journal of Political Economy, 87: 1919, p.694-717.

E. W. Kemmerer, The American Economic Review, June 1918 p. 248.

E. E. Day, The Review of Economic Statistics, 1921, p18.

E. E. Day, Index Number of Physical Production of the United States, The Review of Economic Statistics, 1920.

Irving Fisher, Equation of Exchange, American Economic Review, 1916, 1917, 1918.

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N/1198/05512/4783X

378.748 B POA1926.5
Wang.
Methods used by the U.S.

378.748 POA1926.5
983

3 1198 05512 4783
N/1198/05512/4783X